Commodore®
MAGAZINE

Tax Update

RUN

THE COMMODORE 64/128 USER'S GUIDE

Discover the World of TELECOMMUNICATIONS

- Online Chatting
- News/Information
- Software Libraries
- And More!

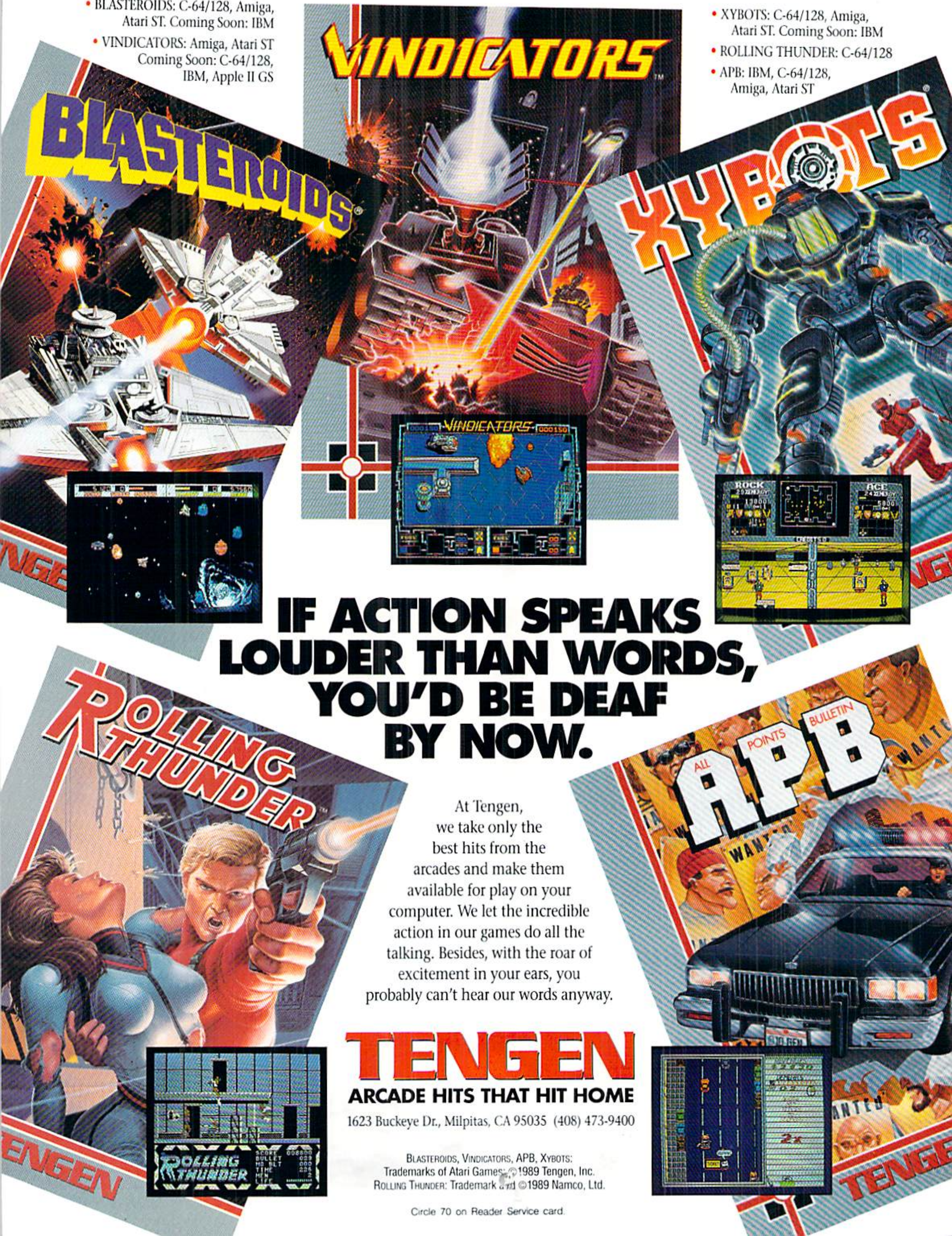
GEnie
QuantumLink
PeopleLink
Delphi
CompuServe
commodore
modem/1200
MODEL 1670

PLUS!

- Newest JiffyDOS Reviewed
- 1989 Annual Index
- C-64 Table Soccer
- Super Fonts for RUN Paint
- C-128 40-Column Speed-Up

February 1990
An IDG Communications Publication

U.S.A. $2.95
CANADA $3.95
U.K. £2.00


BLASTEROIDS
VINDICATORS
XYBOTS
ROLLING THUNDER
ALL POINTS BULLETIN
APB
WANTED
TENGEN

- BLASTEROIDS: C-64/128, Amiga, Atari ST. Coming Soon: IBM
- VINDICATORS: Amiga, Atari ST Coming Soon: C-64/128, IBM, Apple II GS

- XYBOTS: C-64/128, Amiga, Atari ST. Coming Soon: IBM
- ROLLING THUNDER: C-64/128
- APB: IBM, C-64/128, Amiga, Atari ST

IF ACTION SPEAKS LOUDER THAN WORDS, YOU'D BE DEAF BY NOW.

At Tengen, we take only the best hits from the arcades and make them available for play on your computer. We let the incredible action in our games do all the talking. Besides, with the roar of excitement in your ears, you probably can't hear our words anyway.

TENGEN

ARCADE HITS THAT HIT HOME

1623 Buckeye Dr., Milpitas, CA 95035 (408) 473-9400

BLASTEROIDS, VINDICATORS, APB, XYBOTS:
Trademarks of Atari Games; ©1989 Tengen, Inc.
ROLLING THUNDER: Trademark and ©1989 Namco, Ltd.

Circle 70 on Reader Service card.

NEW For the C-128!
HOW TO FILL
YOUR DAYS
WITH FANTASY,
ADVENTURE,
PERCEPTION,
FINANCE,
INFORMATION,
EXCITEMENT,
AND MUCH,
MUCH MORE...
EVERY MONTH.

BLOW YOUR MIND FOR ONLY $9.97

WHAT A WAY TO GO, 128!

LOADSTAR 128 is a totally new quarterly software collection designed specifically for the Commodore® 128 by the editors of LOADSTAR, the best-selling monthly disk for the Commodore 64. Every three months you will receive a new 5 1/4" disk filled with new 128-only programs *not found* in our monthly LOADSTAR collection.

USE THE FULL POWER OF YOUR 128

LOADSTAR 128 issue #5 contains seven great programs for your C-128, taking advantage of the 128 features like the 80-column format, larger memory and a more powerful BASIC.

CONTENTS OF ISSUE #5

RESUME WRITER—Create a professional-looking resume.

STORY WRITER—Write a great short story with this special word processor.

RECIPE BOX—Keep all your kitchen recipes on disk.

WRECK OF THE COPERNICUS—Explore space as you play a huge text adventure game.

CONCENTRATE—Have fun with a graphic version of an old TV gameshow.

TEXTURIZER—Modify most text files to suit your word processor.

QUARKTORY—Print important programming information on disk labels.

THE BEST SOFTWARE VALUE FOR THE128

LOADSTAR 128 is delivered direct to you four times each year for only $39.95. That's only $9.97 an issue. So order today with the coupon below or call **1-800-831-2694.**

YES! Please rush me my first issue of LOADSTAR 128 and start my one year subscription (4 quarterly issues) for only $39.95 (Canada/Mexico $49.95, Other foreign $59.95). Make checks payable to **Softdisk Publishing** in U.S. funds. Louisiana residents add 4% state sales tax.

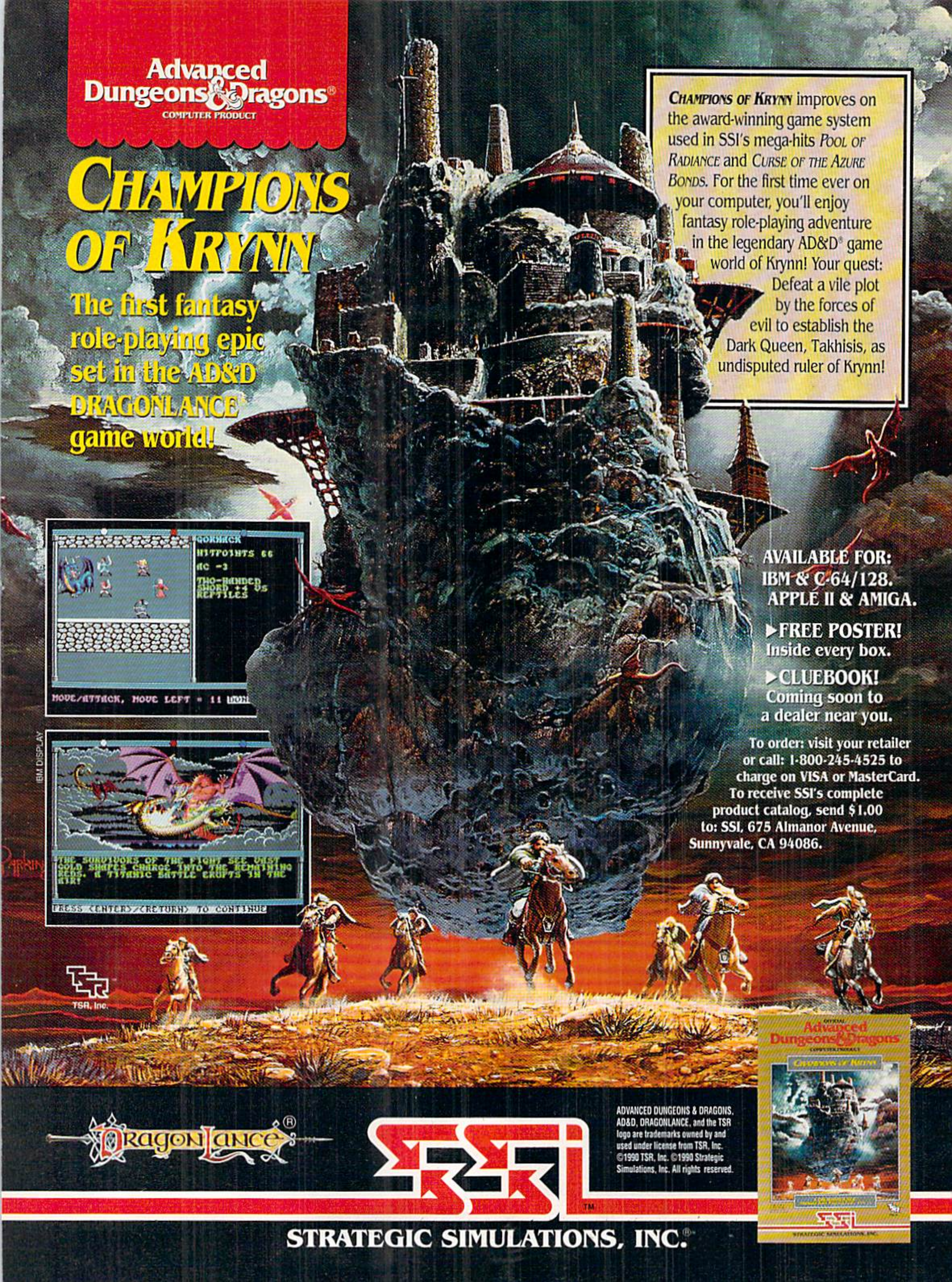
Name ____________________
Address ____________________
City ____________________ State ______ Zip + 4 ______-______
Home Phone (____) ______-______
☐ Discover ☐ AmEx ☐ VISA/MC ☐ Payment Enclosed(*U.S. funds only!*)
Card # ____________________
Signature ____________________ Exp. ______

SOFTDISK PUBLISHING
P.O. Box 30008 • Shreveport, La. • 71130-0008 RU020

CALL TOLL FREE
1-800-831-2694

Circle 66 on Reader Service card.

Commodore is a trademark of Commodore Electronics, Ltd.



CHAMPIONS OF KRYNN

The first fantasy role-playing epic set in the AD&D DRAGONLANCE® game world!

CHAMPIONS OF KRYNN improves on the award-winning game system used in SSI's mega-hits *POOL OF RADIANCE* and *CURSE OF THE AZURE BONDS*. For the first time ever on your computer, you'll enjoy fantasy role-playing adventure in the legendary AD&D® game world of Krynn! Your quest: Defeat a vile plot by the forces of evil to establish the Dark Queen, Takhisis, as undisputed ruler of Krynn!

```
GORMACK
HITPOINTS 66
AC -3
TWO-HANDED
SWORD +4 VS
REPTILES

MOVE/ATTACK, MOVE LEFT = 11 DON
```

```
THE SURVIVORS OF THE FIGHT SEE VAST
GOLD SHAPES CHARGE INTO THE REMAINING
REDS. A TITANIC BATTLE ERUPTS IN THE
AIR!

PRESS <ENTER>/<RETURN> TO CONTINUE
```

AVAILABLE FOR:
IBM & C-64/128.
APPLE II & AMIGA.

▶FREE POSTER!
Inside every box.

▶CLUEBOOK!
Coming soon to a dealer near you.

To order: visit your retailer or call: 1-800-245-4525 to charge on VISA or MasterCard. To receive SSI's complete product catalog, send $1.00 to: SSI, 675 Almanor Avenue, Sunnyvale, CA 94086.

ADVANCED DUNGEONS & DRAGONS, AD&D, DRAGONLANCE, and the TSR logo are trademarks owned by and used under license from TSR, Inc. ©1990 TSR, Inc. ©1990 Strategic Simulations, Inc. All rights reserved.

STRATEGIC SIMULATIONS, INC.®

CONTENTS

VOLUME 7, NUMBER 2

FEBRUARY 1990

FEATURES

26 ONLINE, IN TOUCH, OUT OF SIGHT *by John Ryan*
Bring a vast variety of people, events and numerous services into your home with your Commodore computer and a modem.

32 FOOSBALL 64* *by Tony Brantner*
Whip your computer in this C-64 version of Table Soccer.

36 DUO * *by Robert Cook*
Discard your hand before your C-64 does to win points in this tricky and challenging card game.

42 SUPER FONTS * *by Robert Rockefeller*
Now RUN Paint users can create characters that are over four times the size of those in regular Commodore character sets.

44 FAST-40* *by Bret Timmins*
Speed up your C-128 40-Column-mode programs even if you're in 64 mode.

DEPARTMENTS

4 RUNNING RUMINATIONS
Wild speculation unfortunately surrounds Commodore's latest embryonic computer.

6 MAGIC
Now you can put four-line addresses in Label Base, clean your drives in silence and add a dash of flash to your screen.

12 NEWS AND NEW PRODUCTS
Recent developments and releases in the world of Commodore computing.

16 SOFTWARE GALLERY *Reviews of:*

- Taxaid
- TaxPerfect
- Acrotax
- Shinobi
- Omega
- Omni-Play Basketball
- Total Eclipse
- Search for the Titanic
- Storm Across Europe
- Bad Dudes
- Skate Crazy
- Might and Magic II
- Indiana Jones and the Last Crusade

24 MAIL RUN
Readers describe unusual applications, ask for Label Base enhancements, and offer other input.

50 GOLD MINE *by Louis F. Sander*
Tips from around the world to help make you a better gamer.

54 COMMODORE CLINIC *by Ellen Rule*
Creating hi-res 64 screens, troubleshooting your Commodore system and other answers to your questions about Commodore computing.

56 128 MODE* *by Mark Jordan*
Keep your sprites in order with NICK, the Newly Invented Collision Kit.

57 *RUN*'S CHECKSUM PROGRAM
Run it right the first time.

60 GEOWATCH *by Tim Walsh*
Here's some geoNews and also geoAnswers to your specific geoQuestions.

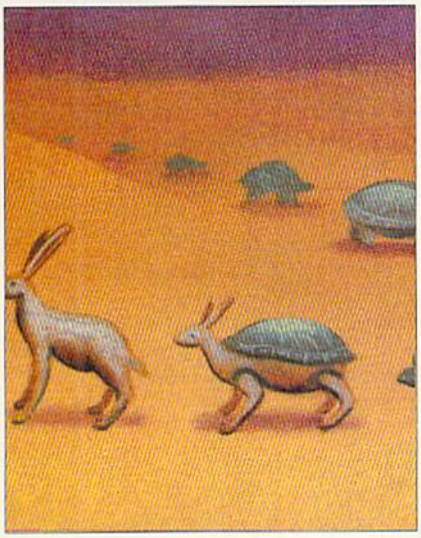
61 HARDWARE GALLERY *by Michael Cavanaugh*
Boost your drive's speed even more dramatically with this upgraded version of JiffyDOS.

63 INDEX TO *RUN*'S 1989 ARTICLES AND REVIEWS

69 RUN AMOK
We run corrected.

72 COMING ATTRACTIONS; LIST OF ADVERTISERS

PAGE 26



PAGE 44

COVER PHOTOGRAPHED BY ED JUDICE

RUN (ISSN 0741-4285) is an independent journal not connected with Commodore Business Machines, Inc. *RUN* is published monthly by IDG Communications/Peterborough, Inc., 80 Elm St., Peterborough, NH 03458. Phone 603-924-9471. Second-class postage is paid at Peterborough, NH, and at additional mailing offices. Canadian second-class mail registration number is 9565. Subscription rates in U.S. are $22.97 for one year, $34.97 for two years and $48.97 for three years. In Canada and Mexico, the one-year subscription rate is $27.97, with U.S. funds drawn on a U.S. bank. Foreign surface mail subscriptions are $42.97 for one year, and foreign air mail one-year subscriptions are $77.97, with U.S. funds drawn on a U.S. bank. *RUN* is nationally distributed by International Circulation Distributors. **Postmaster**: Send address changes to *RUN*, Subscription Services, PO Box 58711, Boulder, CO 80322-8711. (Canadian address changes to *RUN*, PO Box 1051, Fort Erie, Ontario, Canada L2A 5N8.)

*** The programs for these articles are on the January–February 1990 ReRUN disk, which also includes three never-published bonus programs—all for only $16.47. Order with the insert card at page 36.**

PUBLISHER
STEPHEN ROBBINS

EDITOR-IN-CHIEF
DENNIS BRISSON

MANAGING EDITOR
SWAIN PRATT

SENIOR EDITOR
BETH S. JALA

ASSOCIATE EDITOR
HAROLD R. BJORNSEN

TECHNICAL MANAGER
TIMOTHY WALSH

COPY EDITOR
PEG LEPAGE

CONTRIBUTING EDITORS
ELLEN RULE; JOHN RYAN
LOU WALLACE

ART DIRECTOR
HOWARD G. HAPP

DESIGNERS
ANN DILLON
LAURA JOHNSON

PRODUCTION SUPERVISOR
ALANA KORDA

ASSOCIATE PUBLISHER AND
NATIONAL ADVERTISING SALES MANAGER
KENNETH BLAKEMAN

SALES REPRESENTATIVE
NANCY POTTER-THOMPSON

ASSOCIATE SALES REPRESENTATIVE
CLASS AD SALES
HEATHER PAQUETTE
603-924-9471

ADVERTISING COORDINATOR
MEREDITH BICKFORD

CUSTOMER SERVICE REPRESENTATIVE
SUSAN KANIWEC

ADVERTISING ASSISTANT
MARGOT SWANSON

WEST COAST OFFICE:

WESTERN STATES SALES MANAGER
GIORGIO SALUTI

SALES REPRESENTATIVE
SHELLEY HARMON

2421 BROADWAY, SUITE 200
REDWOOD CITY, CA 94063
415-363-5230

CIRCULATION DIRECTOR
PAUL RUESS
1-800-274-5241

ASSISTANT CIRCULATION MANAGER
PAM WILDER

MARKETING MANAGER
WENDIE HAINES MARRO

MARKETING COORDINATOR
LAURA LIVINGSTON

EXECUTIVE ASSISTANT TO PUBLISHER
LISA LAFLEUR

Entire contents copyright 1989 by IDG Communications/Peterborough, Inc. No part of this publication may be printed or otherwise reproduced without written permission from the publisher. Programs published in this magazine are for the personal use of the reader; they may not be copied or distributed. All rights reserved. *RUN* assumes no responsibility for errors or omissions in editorial or advertising content. *RUN* does not assume any liability for advertisers' claims.

Commodore Magazine is a registered trademark of Commodore Business Machines, Inc.

RUNNING RUMINATIONS

TABLOID JOURNALISM

What's more popular than Roseanne Barr, more controversial than Cher and more incredible than Elvis sightings?

It's speculation surrounding Commodore's latest "secret project." There's enough juicy gossip here to make a *National Enquirer* reporter blush.

In the spotlight is not some glamorous movie screen star or talk show host or rock 'n roll idol. No, what keeps tongues wagging is none other than the unlikely C-65, an "as yet to be announced," "still in the development process," "may never see the light of day" computer from Commodore.

While Commodore has yet to issue an official announcement, it's no secret that they are working on a new computer. Commodore's history is, in fact, chock full of computers that were never marketed.

RUN has been close to the C-65 situation since work began on the machine early last year. We've known the specs, seen the keyboard arrangement and what chips are being used. The only thing we haven't known is whether or not Commodore plans to market it. And this has precluded our joining in the rampant speculation that has plagued some of the other computer publications, which have greeted this proposed machine with mixed reviews.

What we know about the C-65 is that it is a 128K machine expandable to one megabyte of memory. It features improved speed and graphics and a built-in 3½-inch disk drive. For the most part, it will be compatible with existing C-64 software. And in keeping with Commodore tradition, its price will be attractive.

Let's put to rest some of the ridiculous rumors surrounding Commodore's latest computer.

◇

While, for the most part, we have remained silent about this machine, whose fate rests in the hands of Commodore's marketing mavens, we have been amused, and sometimes shocked, at some startling "mistruths" surrounding this new computer in other publications:

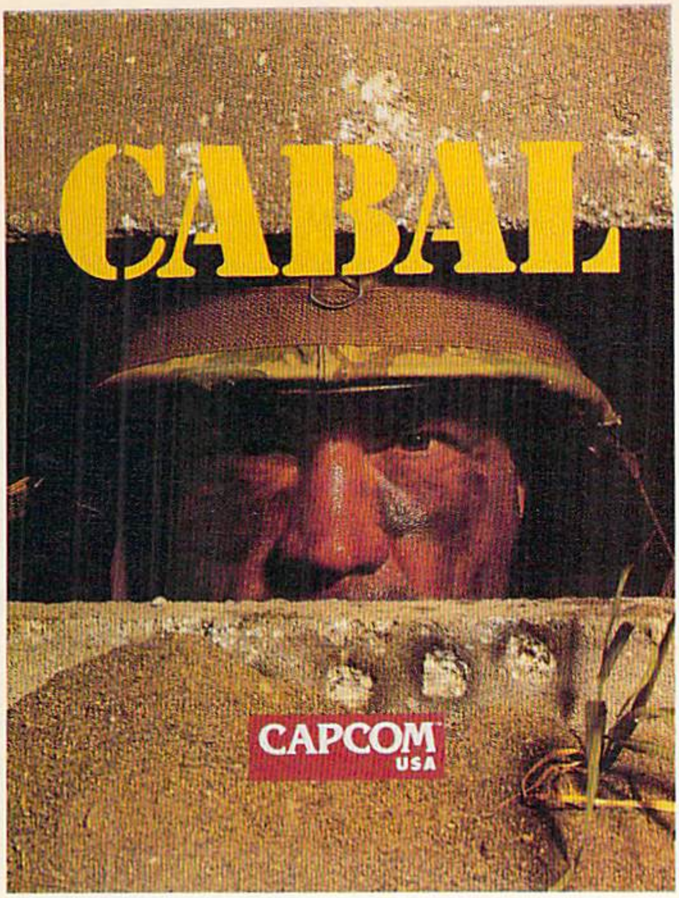
- the machine will be out in (pick one) November 1989, December 1989, November 1990, December 1990
- it will be called the 64gs
- it lacks a keyboard
- it will be the Edsel of home computers
- nobody will buy this machine
- developers won't develop software for it
- this will be Commodore's Waterloo.

Journalists have a responsibility to report the news and maintain the readers' right to know. But they also have a responsibility to report it accurately and not to speculate wildly just for effect. . .or to sell issues. If and when Commodore decides to release the machine, *RUN* will report on it.

It's a sad commentary on the state of the industry when so much hoopla is given to a machine that is still on the drawing boards. Are we, like prepubescent rock fans, so desperate to catch a glimpse of the next potential star?

Dennis Brisson

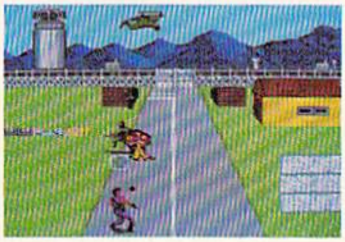
Dennis Brisson
Editor-in-Chief



Top Secret.

Only a lunatic would agree to single-handedly destroy a major terrorist operation in Central America. With submarines, choppers and tanks, your enemy outnumbers you in the sea, air and ground. Just the odds you love!

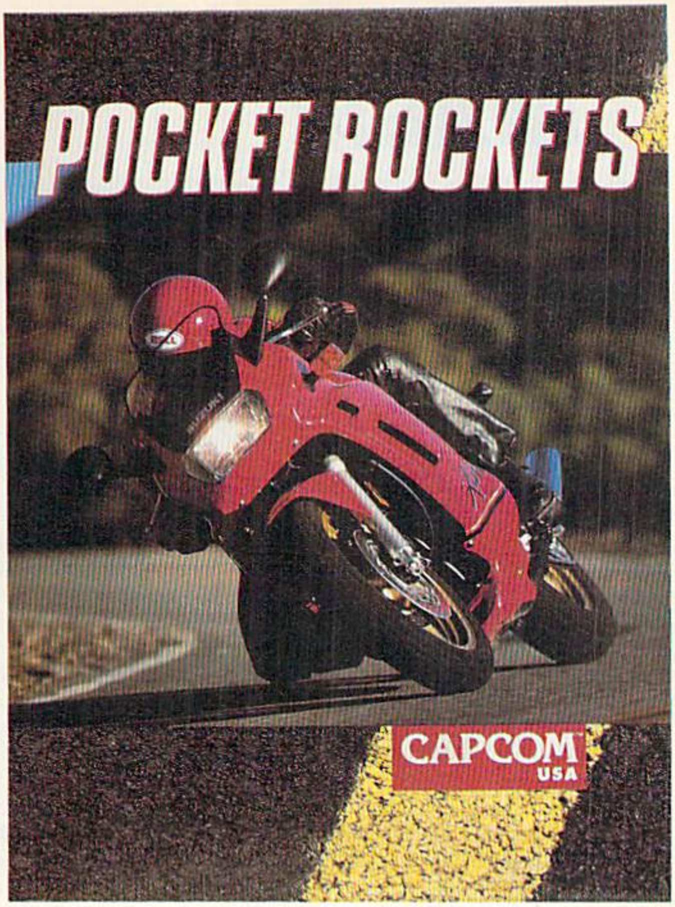
CABAL



- Dodge exploding bomb shells as you sabotage Base Camp One.
- Upgrade your weapons by stealing those of the enemy!
- Enjoy detailed graphics and true-to-life sound effects.

HOW TO ORDER:
Visit your local retailer today or phone with VISA/MC (USA & Canada), (408) 727-1665, Monday-Friday, 8am-5pm Pacific Time. Both products available on IBM ($34.95 ea.) and Commodore 64 ($29.95 ea.). Pocket Rockets also available on Commodore Amiga ($39.95). IBM version includes both 5 1/4" and 3 1/2" disks.

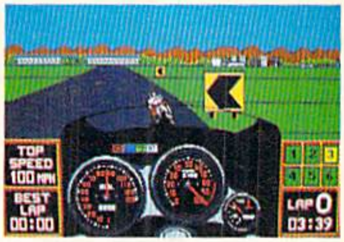
IBM, Commodore 64, and Amiga are registered trademarks of International Business Machines Corp., Commodore Electronics Ltd., and Commodore-Amiga Inc., respectively. Capcom logo is a registered trademark of Capcom U.S.A., Inc.



Top Speed.

Get your hands on some of the most powerful motorcycles ever made. From 0 to 60 in four seconds, you're in for the fastest–and deadliest–ride of your life. Watch out for that curve up ahead!

POCKET ROCKETS



- Test drive the Suzuki Katana, Kawasaki Ninja, Honda Hurricane and Yamaha FZR!
- Authentic instrument panels and road scenes bring your ride alive!
- Negotiate heart-stopping turns, or speed down the explosive straight-line quarter mile.

CAPCOM® USA

3303 Scott Blvd.
Santa Clara, CA 95054
(408) 727-0400

Circle 22 on Reader Service card.

Magic

Now you can put four-line addresses in Label Base, clean your drives in silence and add a dash of flash to your screen.

Compiled by TIM WALSH

$578 An Extra Line for Label Base

Many readers have expressed their fondness for Robert Kodadek's Label Base program (see the RUN Works disk or the August 1989 issue of *RUN*). However, some readers found its provision for only a one-line street address a serious limitation.

The following line changes to Label Base allow it to print two-line street addresses, or four lines per standard-sized mailing label. While adding the extra label line, I also took the liberty of adding an F8 function key Exit option to the main menu.

To incorporate these lines into Label Base, load and run *RUN*'s new Checksum in either 64 or 128 mode. Now load the Label Base program, but don't run it. Type in the necessary changes, making certain the correct checksum numbers appear. Then deactivate *RUN*'s Checksum and save the finished version of Label Base to a work disk, being sure to identify it as the four-line mailing label version.

```
0 REM LABEL BASE WITH FOUR LINE ADDRESS -
  TIM WALSH                           :REM*154
40 PS=0:LL=2:Q=250:C=40:MO=64:ML=828:YR=78
   2:PRINT CHR$(142)                  :REM*129
80 B$=CHR$(13)+CHR$(18):O$=CHR$(146):FOR I
   =0 TO 7:READ FD$(I),L%(I):NEXT :REM*102
120 DIM R$(Q,8),K(Q):FORI=1 TO Q:K(I)=I:NE
    XT                                 :REM*54
225 PRINT B$ SPC(5)"F8" O$" - QUIT LABEL B
    ASE"                              :REM*156
230 GOSUB310:KP=ASC(A$)-132:IF KP<1 OR KP>
    8 THEN 230                         :REM*86
240 ON KP GOSUB430,560,650,1330,980,880,15
    90,2040                            :REM*16
490 FOR I=RN TO Q:FOR N=0 TO 7:INPUT#5,R$(
    I,N)                              :REM*237
610 FOR I=1 TO NR:FOR N=0 TO 7:IF R$(K(I),
    N)="" THEN R$(K(I),N)=SP$         :REM*237
990 RN=T:NR=T:FLAG=1:FOR I=0 TO 7:R$(RN,I)
    ="":NEXT                           :REM*45
1000 GOSUB1080:FOR I=0 TO 7:X=8+I:Y=11:GOS
     UB280:POKE YR,L%(I)              :REM*111
1030 NEXT I:K(RN)=RN:GOSUB270:Y=7:GOSUB280
     :PRINT"PRESS SPACE BAR FOR ANOTHER"
                                      :REM*132
1090 X=8:Y=0:GOSUB280:FOR I=0 TO 7:LD=36-(
     24-L%(I))                        :REM*221
1180 X=8:Y=0:GOSUB280:FOR I=0 TO 7:REM*254
1280 FOR N=0 TO 7:R$(K(RN),N)=R$(NR,N):R$(
     NR,N)="":NEXT                    :REM*101
1430 GOSUB270:Y=7:GOSUB280             :REM*92
1520 FOR I=0 TO 7:R$(K(RN),I)="":NEXT
                                       :REM*95
1530 GOSUB1080:FOR I=0 TO 7:X=8+I:Y=11:GOS
     UB280:POKE YR,L%(I)              :REM*123
1745 PRINT#4,R$(K(RN),3)               :REM*57
1750 PRINT#4,R$(K(RN),4)","CHR$(32) R$(K(R
     N),5) CHR$(32);                  :REM*188
1760 PRINT#4,R$(K(RN),6)               :REM*71
1890 NS=NS+LEN(R$(K(I),7)):ND=79-NS
                                      :REM*192
1910 PRINT#4,R$(K(I),7):LC=LC+1:IF LC<60 T
     HEN 1930                          :REM*58
1950 DATA LAST,15,FIRST,18,STREET,24,STREE
     T,24                              :REM*57
2040 PRINTCHR$(147)SPC(10)"ARE YOU SURE? Y
     /N"                              :REM*196
2050 GETA$:IF A$="" THEN 2050          :REM*90
2060 IF A$<>"Y" THEN RETURN            :REM*99
2070 END                              :REM*158
```

—Tim Walsh, Magic Columnist

$579 *RUN* Magazine Disk ID

If you'd like to add RUN to the two-character disk ID as you're formatting a 1541 disk in C-64 or C-128 mode, use the following in place of the Header command:

```
OPEN 15,8,15,"N0:diskname,"+"{SHIFT-SPACE}"+CHR$(138):
CLOSE 15
```

—Richard Penn, Montreal, Quebec, Canada

$57A 128 Un-New

It doesn't happen often, but it does happen. You accidentally enter NEW and wipe out your favorite C-128 program before saving a copy to disk. If you have a copy of my 128 Un-New trick, your program will be restored as good as new!

Type the following in Direct mode (without a line number) then press return to revive the lost program:

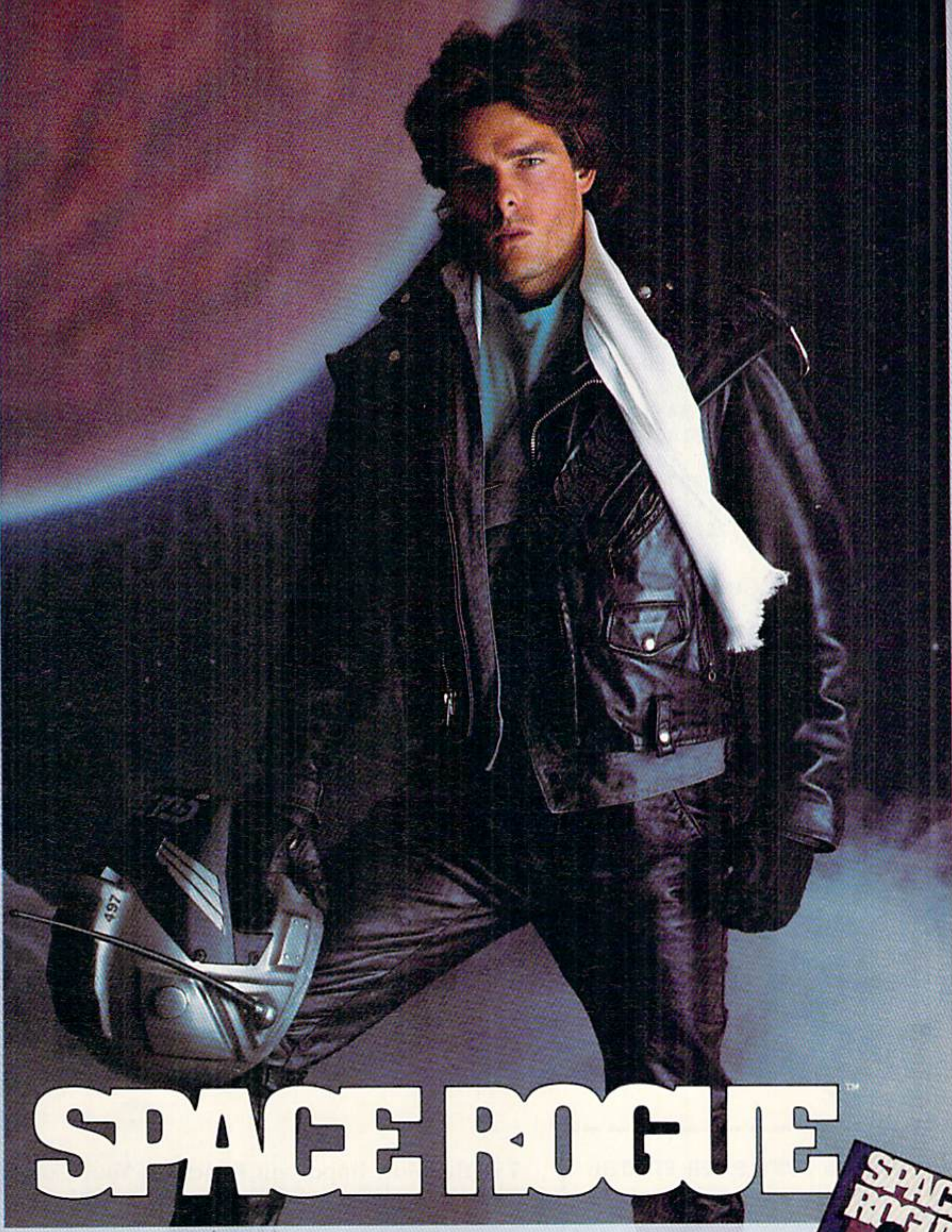
```
POKE 7170,28:X=7171:DO:Y=PEEK(X):X=X+1:LOOP
UNTIL Y=28:POKE 7169,DEC(RIGHT$(HEX$(X−2),2))
```

—Chris Hayosh, Warren, MI

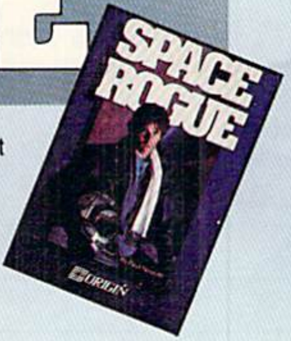
$57B Ten C-128 Function Keys!

Most C-128 computerists know that entering the Key command allows them to redefine function keys 1 through 8. My program, Ten C-128 Function Keys, adds the help key and the shift/run-stop key combination as two more programmable function keys.

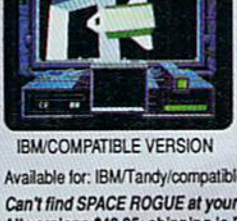
After running the program, redefine shift/run-stop by entering 9, or the help key by entering 10. Be sure to test your ►



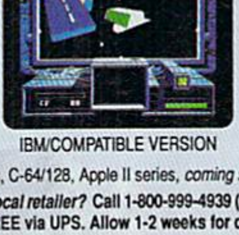
SPACE ROGUE™



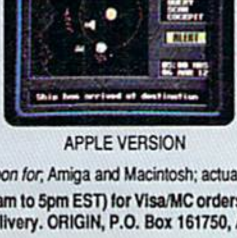
Rocket into the striking realism and spectacular visuals of **SPACE ROGUE**, the phenomenal 3D space flight simulation. You'll discover authentic flight dynamics, precision navigational aids and sophisticated weapons technology as you maneuver through turbulent ion storms and confront alien foes. You'll visit space stations and mining outposts — swapping tales with pirates, drinks with friends and goods with merchants. It's the seamless integration of space flight and role playing that makes **SPACE ROGUE** the first ORIGIN Cinematic Experience™.



IBM/COMPATIBLE VERSION



IBM/COMPATIBLE VERSION



APPLE VERSION

ORIGIN™
We create worlds.™

Available for: IBM/Tandy/compatibles, C-64/128, Apple II series, *coming soon for*; Amiga and Macintosh; actual screens may vary.

Can't find SPACE ROGUE at your local retailer? **Call 1-800-999-4939 (8am to 5pm EST) for Visa/MC orders; or mail check or money order (U.S.$) to ORIGIN. All versions $49.95; shipping is FREE via UPS. Allow 1-2 weeks for delivery. ORIGIN, P.O. Box 161750, Austin, Texas 78716.**

Circle 58 on Reader Service card.

new key definitions by pressing either key after running the program.

```
0 REM TEN C-128 FUNCTION KEYS - YOHANN TRE
  MBLAY                               :REM*23
10 SCNCLR:INPUT "ENTER FUNCTION KEY 9 OR 1
   0";K                              :REM*253
20 IF K<> 9 AND K <>10 THEN 10        :REM*56
30 INPUT"ENTER NEW STRING FOR FUNCTION KEY
   ";K$                              :REM*104
40 FOR A = 1 TO LEN(K$):BANK0         :REM*26
50 POKE 49151+A,ASC(MID$(K$,A,1)):NEXT
                                     :REM*119
60 POKE 250,0:POKE 251,192:POKE 252,0
                                      :REM*26
70 BANK 15:SYS 65381,250,K,LEN(K$),0
                                     :REM*122
```

—YOHANN TREMBLAY, CHICOUTIMI, QUE., CANADA

$57C DISK DRIVE-CLEANING HELPER

The use of cleaning disks is essential for long-term 1541 and 1571 operation, but getting the drive to spin without head-rattling and grinding noises is no small feat. My 1541/1571 Drive Cleaner spins the drive safely and quietly, with no rattling, grinding or other sound effects. Moreover, it spins the disk long enough to ensure a thorough cleaning. Use it in either 128 or 64 mode with your favorite cleaning disk the next time you clean your drive.

```
0 REM DISK DRIVE CLEANER - DANNY HUMMEL
                                     :REM*149
10 PRINTCHR$(147)"PLACE CLEANING DISK IN D
   RIVE, PRESS A KEY"                :REM*116
20 GETA$:IF A$=""THEN 20             :REM*212
30 OPEN 15,8,15                      :REM*138
40 OPEN 2,8,2,"#"                     :REM*99
50 FOR J=1 TO 35:PRINT#15,"U1:2 0 1 1"
                                     :REM*126
60 PRINT"PASS"J" OF 35"              :REM*188
70 PRINT#15,"U1:2 0 35 1"            :REM*132
80 NEXT J                            :REM*103
90 INPUT#15,A$,A$,A$,A$               :REM*82
100 CLOSE 2:CLOSE 15                 :REM*207
```

—DANNY J. HUMMEL, ESSEX, IA

$57D QUICK COLOR 64

Have you ever wanted to change character color ROM in a fraction of a second? Changing character color in Basic is impossible, so I wrote Quick Color 64. After you've typed it in and saved it to disk, run it to see it in action.

It's fully relocatable to any address in memory and performs its magic via a SYS S, X command, with the value of

RUN's SUPER STARTER PAK

The ONE Disk Every New 64 and 128 Owner Needs!

☐ YES! Send me RUN's SUPER STARTER PAK today for just $24.95 postage paid.

☐ Check Enclosed
☐ MasterCard ☐ VISA ☐ American Express

Card # Exp. Date
Signature
Name
Address
City
State Zip

Make checks payable to RUN Magazine. Foreign orders please add $2.50 per disk for airmail delivery. Please allow 3-6 weeks for delivery. SP290

80 Elm Street • Peterborough, NH 03458

7 of the Most Important Functions Your Computer Was Created for. . . All for Less Than $25.00!!!

- RUN SCRIPT PLUS. A powerful *word processor* with spelling checker and dictionary.
- RUN FILE. An immensely useful *database* for collecting, sorting and printing stacks of records.
- RUN CALC. A *spreadsheet* that's so easy and useful for all your statistical needs.

PLUS!
- RUN TERM PLUS telecommunications program.
- RUN LABELS label printing utility.
- RUN SHELL disk manager.

AND!!!
- RUN PAINT. The super-popular, full-featured *paint and draw* program!

ORDER NOW! Call 1-800-343-0728

or use this handy coupon.

X ranging from 0 to 15. A demo program is incorporated into Quick Color 64 that lists the three "working" lines once the control key is pressed.

```
0 REM QUICK COLOR 64 - JEFFREY PANICI
                                :REM*46
10 PRINTCHR$(147):CK=.:S=828:FORX=STOS+23:
   READD:POKEX,D:CK=CK+D:NEXT      :REM*225
20 IFCK<>3953THENPRINT"ERROR!":END:REM*113
30 DATA 32,155,183,138,162,,157,,216,157,2
   55,216,157,254,217,157,253      :REM*109
40 DATA 218,232,208,241,96,96,153  :REM*30
50 FORT=1TO10:PRINTTAB(8)"PRESS CONTROL TO
    END":NEXT                       :REM*25
60 C(1)=1:C(2)=3:C(3)=6:C(4)=14    :REM*245
70 FORX=1TO4:SYS828,C(X)           :REM*210
80 FORP=1TO40:NEXTP,X:              :REM*99
90 IFPEEK(653)<>4THEN 70            :REM*60
100 PRINTCHR$(147)"{CTRL 9}USE LINES 10-40
     IN YOUR OWN PROGRAMS":POKE 646,1:LIST
    10-40                          :REM*151
```

—JEFFREY D. PANICI, SANDWICH, IL

$57E MAGIC FLASH 64

Thanks to its color graphics modes, there's almost an unlimited number of video effects that the C-64 can generate. By taking advantage of the 64's Extended Background Color mode, Magic Flash 64 causes all shifted characters to color cycle, catching the attention of anyone nearby.

Once you save the program to disk, run it. A sample screen appears that demonstrates the program in action. SYS 49152 activates the routine from within your own programs and SYS 49196 disables it. For a dramatic effect, enter SYS 49171, which fills the screen with shifted spaces.

```
0 REM MAGIC FLASH 64 - SCOTT FICARRO
                                :REM*171
10 DATA 120,169,13,141,20,3,169,192,141,21
   ,3,88,96,238,34,208,76,49,234   :REM*16
20 DATA 169,96,160,0,153,0,4,153,0,5,153,0
   ,6,153,0,7,200,192,0,240,3,76  :REM*196
30 DATA 23,192,96,120,169,49,141,20,3,169,
   234,141,21,3,88,96              :REM*233
40 FOR I=0TO56:READ A:POKE 49152+I,A:NEXT
                                :REM*239
50 A=53265:POKE A,PEEK(A)OR64:REM EXTENDED
    BACKGROUND MODE                :REM*195
60 POKE 53280,0:POKE 53281,0:POKE 646,1
                                :REM*196
70 SYS 49152                       :REM*244
80 PRINTCHR$(147)"{SHFT M}{SHFT A}{SHFT G}
   {SHFT I}{SHFT C} {SHFT F}{SHFT L}{SHFT
   A}{SHFT S}{SHFT H} BY {SHFT S}{SHFT C}{ ►
```

Font master 128
Font master II
xetec
Super Graphix
Super Graphix jr

Excellence ...

for the Commodore

Lt. Kernal – a 20 or 40 Megabyte Hard Drive which supports CPM, includes enhanced system commands, and is expandable, configurable, & *FAST!* Great for BBS operation.

Super Graphix GOLD – the ultimate printer interface which supports 128 FAST serial and includes a 32K buffer, 4 built-in fonts, 4 downloadable fonts, and a utility disk with 27 fonts.

Super Graphix – an enhanced printer interface which has NLQ built in and includes an 8K buffer, 2 downloadable fonts, reset button, and a utility disk with 27 fonts.

Super Graphix jr – an economical printer interface with NLQ built in and includes 10 printing modes, graphics, and easy operation.

FontMaster II – a powerful word processor for the C-64 with 30 fonts ready to use, 65 commands, font creator, data merging, super- and subscripting, italicizing and more.

FontMaster 128 – a super word processor for the 128 with 56 fonts ready to use including foreign language fonts, on-screen font preview, 4 column printing, a 102,000-word spell checker and much more.

The *Xetec* Product Family for the Commodore C64® and 128® .

The name that spells *Quality, Affordability,* and *Reliability*

All Hardware is FCC Certified All Interfaces include a Lifetime Warranty

Commodore C64 and 128 are registered trademarks of Commodore Business Machines, Inc.

xetec Xetec, Inc. 2804 Arnold Rd. Salina, KS. 67401 (913) 827-0685

Circle 96 on Reader Service card.

```
SHFT O}{2 SHFT Ts} {SHFT F}{SHFT I}{SHF
T C}{SHFT A}{2 SHFT Rs}{SHFT O}"
                                :REM*251
```

—SCOTT FICARRO, SUSQUEHANNA, PA

$57F 80-COLUMN CURSOR MAGIC

Even long-time C-128 users might not be aware of all the special effects that the C-128's 80-column cursor is capable of producing. Register 10 of the C-128's 80-column 8563 chip controls the cursor's image. The syntax for adjusting the cursor is:

SYSDEC("CDCC"),DEC("XY"),10

The values for X are as follows:

0: Nonblinking cursor
2: Turn cursor off
4: Fast-blinking cursor
6: Slow-blinking cursor

The value of Y can vary from 0 through 7, where 0 is a large block cursor and 7 is a short underline. The following program demonstrates the differences in appearance of the cursors by adjusting both the size and the blinking rate. Use these various cursors in your next C-128 80-column program.

```
0 REM VARIABLE SIZED 80-COLUMN CURSOR - KE
  VIN SMITH                           :REM*85
10 SCNCLR:PRINT"PRESS ESC KEY OR SPACEBAR
   TO TOGGLE CURSOR"                  :REM*95
15 PRINT"ANY OTHER KEY EXITS PROGRAM"
                                     :REM*177
20 SYSDEC("CDCC"),DEC("07"),10      :REM*198
30 GETKEYA$                            :REM*0
40 IF A$=CHR$(27) THEN SYSDEC("CDCC"),DEC(
   "40"),10:GOTO 30                   :REM*88
50 IF A$=CHR$(32)THEN PRINT A$:GOTO 20
                                      :REM*25
60 END                               :REM*188
```

—KEVIN SMITH, BALTIC, CT ■

Magic is a forum in which RUN*'s imaginative and inventive readers can share with other Commodore users their programming tips, brief software or hardware modifications, shortcuts or items of general interest. If you have an idea to make computing easier, faster, more exciting and enjoyable, send it to: Magic, RUN Magazine, 80 Elm St., Peterborough, NH 03458.*

RUN *pays $10 to $40 for each trick published in the column. If you'd like a copy of the latest edition of* RUN*'s Magic Trick Writer's Guide, send your request with a self-addressed, stamped, business-size envelope; you'll receive a copy in two or three weeks.*

TAXPERFECT™ **Get TaxPerfect™ now and relax on April 15th . . .**

• SEVENTH SUCCESSFUL YEAR! • MANY THOUSANDS ALREADY IN USE!

• Your Simple Answer to the Tax Reform Act of 1986 (As Amended)

• TaxPerfect is the quick, correct, easy way to do your taxes • Absolutely up-to-date with the Tax Reform Act of 1986 and ***all*** new tax changes • Simplest tax return preparation program available — at any price • Single-keystroke form-to-form change • Automatically calculates and transfers data from every FORM and Schedule to FORM 1040 • Simply answer the questions — TaxPerfect calculates return, tax due or amount of refund due you • Automatically elects the greater of Standard or Itemized deductions • Prints data to all FORMS or Schedules you need for your complete return — ready to sign and file • Highly acclaimed by tax pros, CPA's and tax preparers, TaxPerfect is easy to understand and a pleasure to work with. Available for Commodore 64 and Commodore 128.

- TaxPerfect is fully screen-prompted, menu-driven and easy to use. System includes comprehensive User's manual with helpful tutorial example.
- With a single keystroke, TaxPerfect instantly recalculates your entire return when you change any item.
- TaxPerfect also prints directly onto IRS forms.
- TaxPerfect data files can be stored on disk.
- TaxPerfect yearly updates are available at 50% discount to registered TaxPerfect users.
- TaxPerfect is an essential addition to your personal software library — and best of all, it's tax deductible.

TAX PLANNING

• Most powerful program features available —at any price • Supports RAMdisk • Prints the input sheets to organize your data • Built-in calculator feature accumulates input and enters total • 32 PF key functions achieved with 1 or 2 keystrokes • Fast, complete tax calculations — 20 forms in under 2 seconds (most returns in under 1 second) • On-line pop-up Help menus • Full calculation-override capability • Follows IRS text & line #s **exactly** • Exclusive context-sensitive Datachek™ pinpoints omissions—and alerts you to effects of your input • Our exclusive Current Values Display constantly reflects all changes with your input • In Planning Mode all unnecessary text input prompts are eliminated. Only numeric input is prompted for.

RETURN PREPARATION

TaxPerfect PRINTS THE INCOME TAX RETURN FOR YOU: **TaxPerfect 64**—prints page 1 & page 2 of the FORM 1040 and Schedules A,B,C,D,E and SE as well as FORM 2441, 3903 and 6251 on standard IRS government forms or on blank computer paper for use with transparent overlays. **TaxPerfect 128**—supports all of the above forms ***plus*** Schedules F and R and FORMS 2106, 2119, 2210, 3800, 4136, 4255, 4562 and 4684. All other forms and schedules are considered in the calculation. TaxPerfect features direct screen input using fast ten-key style on the Commodore 128.

FULL-FEATURED DEPRECIATION SUPPORT

Self-contained Depreciation program calculates and prints complete listing of depreciable assets . . . all classes . . . any length life . . . traditional methods plus "old" rules, ACRS, MACRS . . . Half-year, mid-quarter & mid-month conventions. Schedule of assets attaches as a detailed, printed supplement to the FORM 4562.

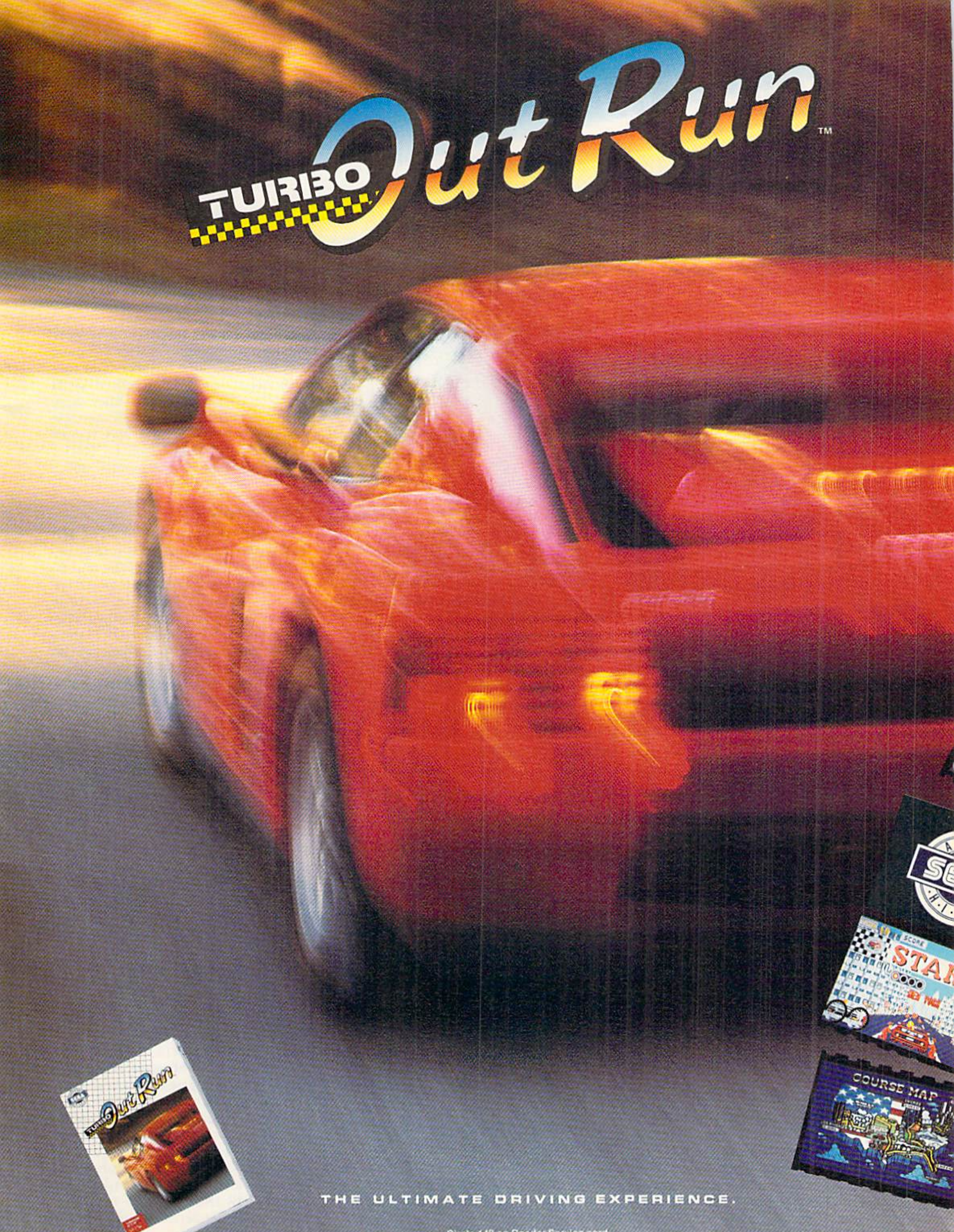
Commodore 64 and Commodore 128 are TRADEMARKS of Commodore Business Machines Corp.

Complete 1989 Edition: TaxPerfect 64 **$89** TaxPerfect 128 **$99**

TO ORDER Call Toll Free **1-800-525-5611** 24 Hrs. from anywhere outside Dallas. In Dallas Call **214/386-6320.** MasterCard, VISA, Money Orders, Bank Checks and COD Orders Accepted (add 3% surcharge for credit card processing) (Texas residents add 8% sales tax) (add $5.00 for COD) ($5.00 Shipping)

Financial Services Marketing Corporation • 500 North Dallas Bank Tower • 12900 Preston Road • Dallas, Texas 75230

Circle 242 on Reader Service card.


TURBO Out Run™
TURBO Out Run
SCORE
STA
COURSE MAP

THE ULTIMATE DRIVING EXPERIENCE.

Circle 148 on Reader Service card.

Distributed by Electronic Arts,™ Copyright 1989 Sega Enterprises, Ltd.

NEWS AND NEW PRODUCTS

Quake shakes west coast PCs, a new way to identify disks, and a disk drive alignment package.

Compiled by HAROLD R. BJORNSEN

COMPUTER DE-FAULT LINE

SAN FRANCISCO—Earthquake damage to personal computers will exceed $100 million, according to Safeware, a firm based in Columbus, Ohio, that specializes in computer insurance. The company says that computer losses already reported indicates this is "the single largest catastrophe in the history of personal computers." In one day, earthquake damage became the year's third largest source of losses, behind theft and electrical damage. Storm damage, including Hurricane Hugo, is now fourth in magnitude.

ALIGN YOUR DISK DRIVE

ARCATA, CA—The **Disk Drive Alignment Tool** is a hardware/software device that aligns your Commodore disk drive. The kit includes an attachable LED display tool and stand-alone software package with manual. The unit requires two 9-volt batteries and a screwdriver. $69.95. North Coast Computers, 791 Eighth St., Jacoby's Storehouse, Arcata, CA 95521.

Check Reader Service number 401.

UPC GENERATOR

CLEVELAND—Piskac Bakery Software (3376 East 65th St., Cleveland, OH 44127) has released a program that enables retailers to print out universal product codes (bar codes) on labels to affix to their merchandise. The **Universal Product Code Creator** is designed for the C-128 and the Commodore MPS1200 printer and requires 3½-by-11/16-inch labels. Price unavailable.

Check Reader Service number 403.

ERASABLE DISK STICKERS

FREEHOLD, NJ—Weber & Sons (3468 Hwy. 9, RD #4, Freehold, NJ 07728) announces its new computer disk-identification system. The **ReMarkAble Label System** is a thin, self-adhesive plastic writing surface that you affix to the disk. Then you can handwrite information about the disk's contents on it with a special marker pen. As the contents of the disk alter, you can wipe the surface and rewrite as necessary. It's available in a kit with 100 white and 100 color-coded stickers, special marker and instructions. $39.95.

1989
IBM - DATA
EXE - DATA
DATA
Mail List #3
News Letter 1-90
11-89-DATA

You can erase the ReMarkAble Label System stickers and write in new data.

Check Reader Service number 400.

A TOUGH FIGHT FOR A PRINCESS

HUNT VALLEY, MD—**Savage** is an arcade-action/adventure game for the C-64 in which you're a powerful warrior searching for your kidnapped princess. To rescue her, you must battle your way through three game scenarios containing evil creatures, unavoidable obstacles within a tunnel-riddled dungeon, fast-scrolling screens and a magical eagle that flies through a mystical maze seeking to complete the quest. It's available for the C-64 for $29.95. Medalist International, 180 Lakefront Drive, Hunt Valley, MD 21030.

Check Reader Service number 404.

SUPERPHONE

PENSACOLA, FL—Suncoast Systems (PO Box 7105, Pensacola, FL 32514) introduces the **Computerfone**, a two-way telephone-to-computer voice digitizer and phone control unit for the C-64 and RS-232 interface. It accepts, digitizes, stores and transfers incoming speech, dials phone numbers and converts incoming tones to standard ASCII characters for processing. Other capabilities include operator notification, external switch recognition and remote contact closing. It's available for $695.

Check Reader Service number 405.

HARD DRIVES

EAST LONGMEADOW, MA—The **HD Series Hard Drives** are mass-storage peripherals available for the C-64 and C-128. They're compatible with most commercial software packages, include built-in GEOS and CP/M compatibility and support all Commodore DOS commands. Partitions of up to 16 megabytes are supported and can be set aside exclusively for GEOS or CP/M use. $599. Creative Micro Designs, Inc., PO Box 646, East Longmeadow, MA 01028.

Check Reader Service number 406.

SHORT CIRCUIT

FARMINGTON, CT—Computer Heroes (PO Box 79, Dept. 1923, Farmington, CT 06034) has released the **Electronics AC/DC Circuit Analysis** programs for the C-64. They calculate and display general numerical solutions to electronic circuits containing up to 63 branches and 40 nodes. Special commands allow you to change parameters and recalculate solutions to a modified circuit. It's available for $29.95.

Check Reader Service number 407.

AH-H-H-H-H!

RED DEER, ALBERTA, CANADA—The **Eye-Mate Optical Massage Device** is a unit worn like eyeglasses to relieve stress around the eyes after prolonged monitor use. It features a tiny, battery-operated dynamo that provides a vibrating massage for nine different areas around the eyes. $39.99, from Man Wah Corp., 57 Erickson Drive, Red Deer, Alberta, Canada T4R 1X8.

Check Reader Service number 410. ■

ALTERED BEAST
ARCADE SEGA HITS
ALTERED BEAST
TRANSFORMATION IS THE ULTIMATE POWER

Distributed by Electronic Arts.™ Copyright 1989 Sega Enterprises, Ltd.
Circle 148 on Reader Service card.

GEOS HAS GO
BUT THIS OFFE

When is an upgrade not an upgrade? When you're upgrading to GEOS 2.0.™

Oh, sure, you've heard a lot of that upgrade stuff before. But GEOS 2.0 isn't just a couple of itsy bitsy enhancements here and there. It's more like 60 whole new options, utilities and applications (some of which were once sold separately) all rolled into one package.

GEOS
GRAPHIC ENVIRONMENT OPERATING SYSTEM
2.0
GEOS 2.0
GEOS 2.0
GEOS 2.0
Berkeley Softworks
The brightest minds are working at Berkeley.

The fact is, GEOS 2.0 is different. Really different. Even in the way it affects your wallet.

For a very limited time, we'll upgrade your GEOS 64 or 128—normally $59.95—for only $29.95 ($34.95 for GEOS 128). Which means that for a very few dollars, you can get a whole lot more out of the system that revolutionized the Commodore® world.

Sound good? Well, this ought to make it sound like music to your eyes:

Order your 2.0 upgrade with this coupon and we'll send you FontPack1™—20 terrific typefaces of all shapes and sizes—for free. Zip. Nada.

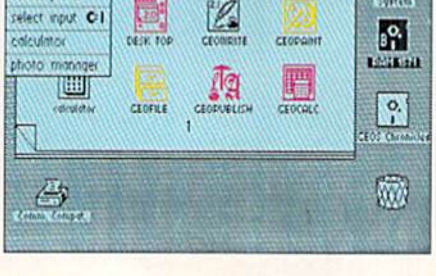
Now is that an upgrade offer, or what?

29.95 Special upgrade offer.

Something to write home about.

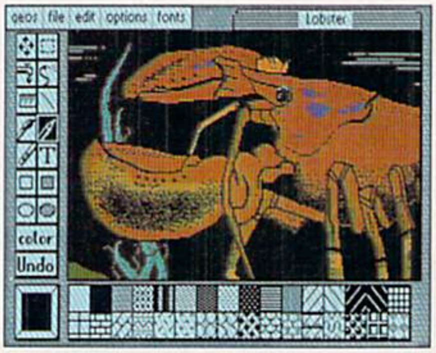
With new geoWrite™ 2.1 you can incorporate multiple column overlays, headlines and borders and instantly convert any Commodore based text (like PaperClip,™ Easy Script,™ Speed Script™ and Word Writer™) into a geoWrite format.

You also get 10 fonts (7 styles in multiple sizes). Date and time stamping. Expandable margins (to 8 inches). Right, left, center and full justification. Single, 1.5 and double spacing. Page numbering. Headers. Footers. Search and replace.


geos
file
view
disk
select
page
options
10/01/88 01:25 PM
GEOS info
deskTop info
select printer
select input C=I
calculator
photo manager
RAM 1571
lected 303 Kbytes used 28 Kbytes free
DESK TOP
GEOWRITE
GEOPAINT
calculator
GEOFILE
GEOPUBLISH
GEOCALC
1
System
RAM 1571
GEOS Chronicles

And that's only a *partial* list.

A new geoSpell™ automatically corrects any blunders it finds 38% faster than before. A new geoMerge™ combines with geoWrite to create customized letters and lists. And geoLaser™ prints near-typeset quality output on Apple® LaserWriters.™

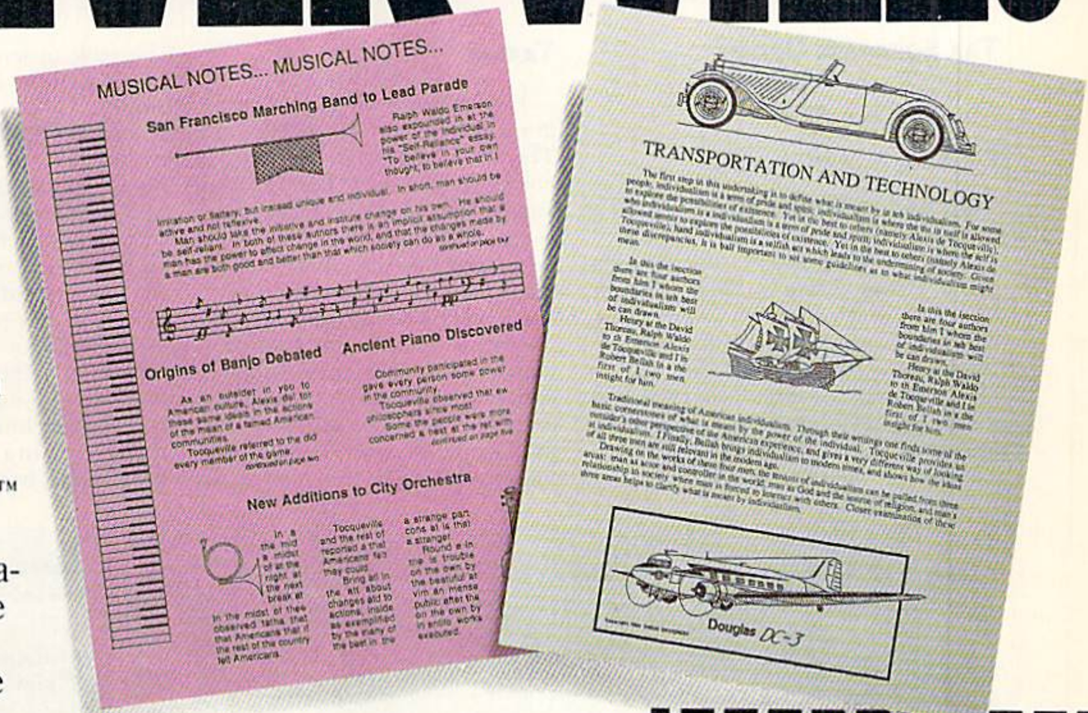

geos
file
edit
options
fonts
Lobster
color
Undo

Whew.

More graphic displays of power.

A new geoPaint™ still gives you 14 graphic tools, 32 brush shapes and 32 painting patterns. But now it can also enlarge or reduce images to scale. And new paint brushes let you create semi-transparent

TTEN BETTER R NEVER WILL.


MUSICAL NOTES... MUSICAL NOTES...
San Francisco Marching Band to Lead Parade
Origins of Banjo Debated
Ancient Piano Discovered
New Additions to City Orchestra
TRANSPORTATION AND TECHNOLOGY
Douglas DC-3

overlay effects.

There's a new grid for easier sketching of large images. New graphic shapes, including connected lines, ellipses and squares. And for more perfect control, you can now stop pattern fills in progress.

The new 2.0 deskTop™ allows multiple file selection for most operations. And erases entire disks without reformatting. It manages more files, three disks and drives (even the 1581) in less time. Copies files faster with fewer disk swaps. And even color codes file icons for easier identification.

There are more keyboard shortcuts. More enhanced desk accessories. It can even retrieve your most recently deleted file from the waste basket!

FREE

The price of power.

For any non-GEOS owner, these two packages might cost a princely sum. But not for you. You were with us when we started, so we figure we owe you one.

Make that two.

So get on your horse and send in the coupon. After all, upgrade offers come and go.

And this one is going very, very fast.

Commodore and Commodore C64 and C128 are trademarks of Commodore Electronics, Ltd. GEOS 2.0, GEOS 128 2.0, geoWrite, geoPaint, geoSpell, geoMerge, geoLaser, deskTop and FontPack1 are copyrights of Berkeley Softworks. Apple, PaperClip, Easy Script, Speed Script' Word Writer and LaserWriter are trademarks of companies other than Berkeley Softworks.

Berkeley Softworks

The brightest minds are working with Berkeley.

FREE FONTS? FOR SURE!

☐ Please send me GEOS 64 2.0 and my free FontPack 1 for $29.95 plus $4.95 for shipping (California residents add 7% tax).

☐ Please send me GEOS 128 2.0 and my free FontPack 1 for $34.95 plus $4.95 for shipping (California residents add 7% tax).

Name

Address

City State Zip

Method of payment:
☐ Check ☐ MasterCard ☐ VISA

Account Number Exp. Date

Signature

Mail to: Berkeley Softworks Fulfillment Center
5334 Sterling Center Drive
Westlake Village, CA 91361

To be eligible for this offer, you must be a current GEOS owner. This coupon plus your GEOS manual cover must accompany your payment. No facsimile will be accepted. Allow two to four weeks for delivery.

This offer is subject to all of the terms and conditions for redemption listed above. Void where prohibited by law and not to be used in conjunction with any other special offer. Berkeley Softworks reserves the right to change this offer at any time.

Orders must be received no later than March 31,1990 to qualify for this offer. G5

Circle 138 on Reader Service card.

SOFTWARE GALLERY

Turn to RUN *for tips on taxes, cybernetics, basketball, sunken treasure and more!*

By BETH S. JALA

TAX SOFTWARE UPDATE

Do You Owe More Or Receive a Refund? That is the Question

In *RUN*'s March 1989 issue, we published a review article ("Many Happy Returns") that focused on several Commodore-compatible 1988 tax programs. Now, we're publishing here a brief summary of three programs that were not previously reviewed, plus an update of the earlier article's table, reflecting the 1989 features.

TAXAID

Taxaid is a basic personal tax program for the C-64 or 128 computer. The software's main section contains Forms 1040 and 2441 and Schedules A and B. You must load separate sections to use Schedules C, D, E, and SE, and then enter the totals from each of these schedules into the main section. Taxaid wouldn't be suitable for professional tax preparers because much of the information (including name and social security number) needs to be entered for each schedule. The program is so simple to use, however, that it's excellent for a basic return. Your printout is suitable to send to the IRS for all included schedules and forms except Form 1040.

TAXPERFECT

TaxPerfect is an extensive tax preparation program. The C-64 version includes 10 forms and schedules, and the C-128 version contains 20. The latter also includes forms that aren't normally found in personal tax packages: Form 4684 (for casualties and thefts) and Form 4136 (for obtaining fuel credits). In addition, the 128 program can be loaded into RAM, which saves time in switching between sections. As an added bonus, the package contains a ►

Table 1. Features of Commodore-compatible tax programs.

	Swiftax	Tax Command	Tax Master	Taxaid	TaxPerfect		Acrotax	
					64	128	64	128
Prices:	$49.95	$59.95	$32	$49.95	$89	$99	$20	$20
Features:								
Forms 1040	x	x	x	x	x	x	x	x
1040A/EZ	x							
Schedules:								
A	x	x	x	x	x	x	x	x
B	x	x	x	x	x	x	x	x
C	x	x	x	x	x	x	x	x
D	x	x	x	x	x	x	x	x
E		x	x	x	x	x		
F	x		x			x		
R		x				x	x	x
SE	x	x		x	x	x	x	x
Forms:								
2106	x	x				x	x	x
2119		x				x		
2210						x		
2441	x	x		x	x	x	x	x
3800						x		
3903		x			x	x	x	x
4136						x		
4255						x		
4562		x	x			x		
4684						x		
6251		x			x	x		
8582							x	x
8615	x	x						
Prints on IRS Forms	x	x			x	x		
128 Mode		x		x		x		x
1990 Update	half	$29.95	discount	$18	half	half	$20	$20

Table 2. Manufacturers' names and addresses.

Swiftax
Timeworks, Inc.
444 Lake Cook Rd.
Deerfield, IL 60015

Tax Command Professional
Practical Programs, Inc.
PO Box 93104
Milwaukee, WI 53203

Tax Master
Master Software
6 Hillery Court
Randallstown, MD 21133

Taxaid
Taxaid Software, Inc.
800 Middle Rd., Box 340
La Pointe, WI 54850

TaxPerfect
Financial Services Marketing Corp.
500 N. Dallas Bank Tower
12900 Preston Rd.
Dallas, TX 75230

Acrotax
Acrosoft
PO Box 5961
Newark, DE 19714

Say Hello To The Newest Member Of The Family!

THE GEOS COMPANION

Introducing the ultimate collection of GEOS creativity tools...and a whole lot more! With The GEOS COMPANION, you'll be a master of music, animation, games, clip art, utilities and more! As with all GEOS software products, the eye-catching icon-based interface is a breeze to learn and easy to use!

A Dynamite Personality!

The GEOS COMPANION is the best GEOS accessory ever published. And it's no wonder, when you discover all the top-notch creativity and productivity tools The GEOS COMPANION has to offer!

- **GeoAnimator.** Create your own animations with this innovative graphics program, the only one of its kind! Try it! It's fun!

- **GeoBach.** Compose your own hit songs or generate fantastic sound effects with this master musicmaker.

- **GeoMusicPlayer.** This easy-to-use music player program lets you play the music files you've created with Geo Bach.

- **Geos Utilities.** Get the most from GEOS with such powerful utility programs as Pattern Editor 2.0, File Merge, 1581 BootMaker, Autoloader and Batch File Copier.

- **GEOS Games.** Includes the classic Breakout game in 3-D format, plus a challenging Master-Mind-like game that'll entertain the entire family.

- **Clip Art.** Noted GEOS designer Susan Lamb has compiled her best collection of dozens of holiday and special occasion images for you to use in your cards, newsletters, memos, etc. Just cut, paste, and publish!

- **PLUS!** A new assortment of distinctive fonts!

- **Documentation book included!**

Distinguished Ancestry!

The GEOS COMPANION is the third in a series of fine GEOS accessories published by RUN Magazine, giving you total confidence in the quality and usefulness of The GEOS COMPANION. Plus, it is completely compatible with all GEOS software products. And perhaps best of all, The GEOS COMPANION is designed to work on both the C64 and C128.

Attractive Price!

The GEOS COMPANION comes with a modest price tag...just $24.97. And remember, as with all of RUN's software, your purchase is fully guaranteed for 30 days if you're not satisfied!

ORDER TODAY!

Ordering The GEOS COMPANION is almost as easy as using it! To get your copy, use this handy coupon or call 1-800-343-0728 and place your credit card order.

☐ **YES!** Send me The GEOS COMPANION for just $24.97!

☐ Check enclosed (make checks payable to RUN Magazine.)

Charge my: ☐ MasterCard ☐ AMEX ☐ VISA

Card #________________ Exp.________

Signature________________

Name________________

Address________________

City________________ State________ Zip________

Canadian and Foreign orders: Please add $3.95 per disk. Checks must be payable in US funds drawn on a US bank.

GEOS is needed to operate The GEOS COMPANION. GEOS POWER PAKS are products of RUN Magazine, and are not connected with Berkeley Softworks, creator of GEOS, or Commodore Business Machines, manufacturer of the C-64 and C-128. Allow 4-6 weeks for delivery.

G3290

GEOS COMPANION • RUN Magazine • 80 Elm Street • Peterborough, NH 03458 stand-alone depreciation program that operates in 64 mode.

With its additional forms, RAM disk option and built-in calculator, this is a professional package for the C-128 owner. For the C-64 user, it's an easy-to-use personal tax program. The manual, complete for both versions, even contains the IRS business codes for Schedules C or F and full explanations of all the forms and schedules and their applications.

ACROTAX

For the economy-minded user, Acrotax is quite a bargain. Both the C-64 and C-128 versions contain most of the forms and schedules needed by the average taxpayer. Everything loads in quickly from the main menu, and tax calculations are done instantaneously. For clarity, Acrotax uses different colors to highlight menu selections, commands and screen headings.

This program is easy to use and comes with a brief, six-page manual. Although there's no discount for annual updates, the total cost is less than the upgrade price for most other tax packages.

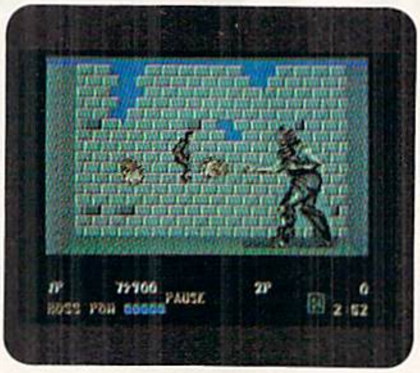
—SANDRA COOK JEROME
BLOOMINGTON, MN

SHINOBI .... A

Put Your Ninja Strength, Know-How And Magic to Work

Sega has packed Shinobi's numerous game screens with enough action and variety to keep home arcaders busy for weeks. Furthermore, to give average players a reasonable chance of completing the contest, the designers have included a game-continue feature—hallelujah!

As master ninja, you must rescue the kidnapped children of the world's leaders from the clutches of the Ring of Five, an international terrorist organization. Doing so requires the successful completion of five extremely hazardous missions, each comprising a number of stages. Every mission culminates in a deadly confrontation with a member of the Ring. In the other stages, your path is obstructed by lesser foes, including gunmen, boomerang throwers and flying ninjas. Classes of villains are nicely individualized, thanks to the program's superior graphics and animation. All objects and locations are skillfully drawn and as close to arcade quality as you could want.



In Shinobi, your rescue mission requires skill, dexterity and ninja magic.

Eliminating opponents is accomplished at close quarters by kicking, punching or using your sword. You can make long-range attacks by flinging shurikens or by firing your pistol. Once during each mission, you may avail yourself of ninja magic, which destroys all henchmen in sight or weakens—but not kills—one of the Ring.

After completing a mission, you enter a bonus round, where your goal is to kill all attacking ninjas before they kill you. Instead of firing at figures approaching from left and right, you shoot at foes moving toward you from the background. Eliminating all aggressors earns you another life; losing costs you nothing.

Running, jumping, rescuing children, firing weapons and striking the enemy are easily controlled with the joystick. Ninja magic, however, is called up via the space bar, so don't forget to use this valuable feature, especially when you most need it.

REPORT CARD

A	**Superb!** An exceptional program that outshines all others.
B	**Good.** One of the better programs available in its category. A worthy addition to your software library.
C	**Average.** Lives up to its billing. No major hassles or disappointments here.
D	**Poor.** This program has some problems. There are better on the market.
E	**Failure.** Many problems; should be deep-sixed!

Ninja magic notwithstanding, Shinobi is not an easy game. To survive, you must react speedily and appropriately to unexpected situations. Discovering your opponents' vulnerable spots and capitalizing on his weaknesses require quick thinking under pressure, as well as accurate shooting, often while airborne.

During the past year, I have reviewed many fighting games. Because of its depth of play, diverse characters, arcade-like graphics, user-friendly control system and game-continue feature, Shinobi is my favorite. *(Sega; distributed by Mindscape, Inc., 3444 Dundee Road, Northbrook, IL 60062. C-64/$34.95.)*

—LEN POGGIALI
SYRACUSE, NY

OMEGA .... A–

The Thinking Computerist's Tank Game

Omega is an innovative excursion into the futuristic world of cybernetics. Imagine: you've been accepted into the fold of engineers at the Organization of Strategic Intelligence. As part of its elite Omega project, it is your job to develop the deadliest cybertank in the world. You must select its chassis, weaponry, computerized systems and artificial intelligence (AI). Once it's built, you can then match your lethal tank against those developed by others—friends and enemies. This is not as much a game as it is a killer-tank construction set.

Omega is not a program to approach with just an hour or two of free time: the documentation, measuring over an inch thick, is an indication of how involved it can be. Toss away your joystick, for any moves your cybertank makes must be pre-programmed by you, who must learn Omega's pseudo-language in order to succeed. Rest assured, however, that learning the English-like syntax is extremely easy, even if you've previously programmed only your electronic coffee pot.

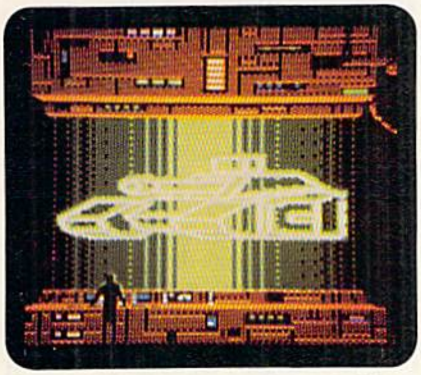
You're given the option of constructing a semi- or full-custom tank. The semi-custom is the easiest, as the program takes care of most of the essentials of tank building, and you simply select a chassis, weapons and electronic goodies and enter a few basic lines of AI terminology. Full-custom tanks, on the other hand, are best approached only ►

after you're comfortable with the program, for they're painstakingly fabricated from the ground up.

The selection process is straightforward. Choices are accomplished through pull-down windows, all of which are layered in an arrangement that is highly effective.

A new player begins with 1000 points, which are used to purchase various cybertank components. If your machine is good enough, you can earn more credits by defeating other cybertanks.

Besides building your tank, you must also give it the smarts to survive. This depends on how firmly you grasp the mechanics of Omega's AI language. This language is much simpler than Basic and is extremely intuitive and logical. Programmers will immediately recognize the use of labels, indented structure, branch commands and if-then testing.



Your mission in Omega—should you decide to accept it—is to build a deadly cybertank.

When your tank is complete, you're ready for battle. You can wage war against pre-built tanks on disk or against tanks built by you or others. There are three battle areas included on the disk, and if you tire of the scenery, you can construct new wargrounds. Competition against others is Omega's tour-de-force, for you can do battle by simply swapping data disks or by holding full-blown cybertank showdowns.

While the graphics are not exceptional, they are effective. The sound, too, is very basic, but, fortunately, Omega doesn't have to rely on sound.

My only serious complaint is that Omega is too disk-intensive. Moreover, the disk loads are slow, and the program refuses to recognize a second drive. Prepare yourself for a lot of disk flipping. I realize a game of this magnitude must be disk-intensive to fit on a 64K machine, but I would've liked a second drive or RAM expansion unit option.

Omega is sure to change the way you think of wargames and the construction set type of program. The bottom line is that Omega puts the power of creation fully in your hands. The amount of effort you put into it will directly influence the satisfaction you receive.

Believe me, the first time your full-custom tank blows the sprockets off an enemy, you'll be poring over the programming tutorials, looking for more devious tricks. *(Origin, 136-B Harvey Road, Londonderry, NH 03053. C-64/ $49.95.)*

—JOHN RYAN
BILOXI, MS

OMNI-PLAY BASKETBALL .... A–

On-Screen Sports Action Is Yours!

Have you ever dreamed of owning a sports franchise? With Omni-Play Basketball, you assume the roles of owner, coach and, to a degree, the players on a team.

As owner, you decide when to send your players to training camp, who to draft and who to trade or cut. As coach, you call the offensive and defensive signals for your team, as well as make decisions throughout a game. Older players may be more skilled, but they need to stay fresh to maintain their performance level and avoid injuries. Smart substituting keeps key players from fouling out of a game.

Portraying a player, however, isn't quite as enjoyable. Most computer sports simulations let the user totally control a player's movement. With Omni-Play, you can pass, shoot, block shots and jump for rebounds, but you can't rely on deft joystick jockeying to fake another player out of his sneakers.

Distinguishing which player you're controlling is a little difficult. It's always the player closest to the ball, but anyone who has played basketball knows how tight things get, particularly when there's a loose ball or rebound.

Otherwise, however, the graphics are excellent. The players are sharp and well-defined, and the background is realistic. Animation is smooth, with the movement of the ball and players quite lifelike.

Particularly impressive are the pregame and halftime shows, where announcers Nick and Bob are shown in a television booth. From their facial expressions to the detail on the court below, you'd swear you're watching the real thing.

These shows provide valuable statistics and strategic tips a coach can employ to defeat the opposition. A good coach will also make use of the impressive array of statistics the program tracks.

Omni-Play Basketball breaks new ground for sports simulations: It's designed so that module enhancement of the original product can change aspects like perspective or difficulty level. The first two modules released are Side-View and College League. Both require the original Omni-Play Basketball SBA League disk to be loaded first.

Loading in the Side-View module changes the original game's perspective and provides slightly more control over the players' actions. This time you see the game as though you were sitting low in the bleachers at mid-court. The graphics and color of this module lack the realism of the original view, but, on the plus side, Side-View gives the user direct control of his team's center, along with a new and interesting halftime show.

The College League module changes the strategic, rather than the visual, aspects of the original Omni-Play. Instead of professional teams, you can coach the college teams that played in the 1989 NCAA Division I Championship.

Whether you enjoy scrutinizing statistics, building a team from scratch or coaching it on the hardwood, Omni-Play Basketball should satisfy you. Although its limited player control may frustrate some, it's nevertheless an excellent program that breaks new ground with its module setup. *(SportTime, 3187-G Airway Ave., Costa Mesa, CA 92626. C-64/ $34.95; modules $19.95.)*

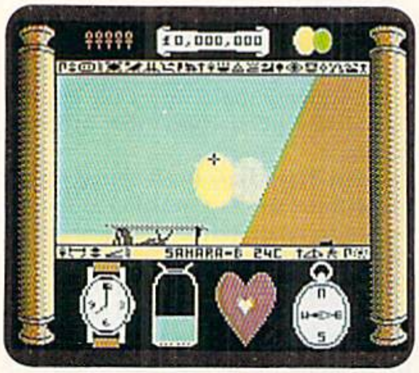
—SCOTT WASSER
WILKES-BARRE, PA

TOTAL ECLIPSE .... B

Seek the Shrine And Evade the Eclipse

In ancient Egypt, Hahmid III, a high priest of the sun god, Ra, placed a curse on the shrine of Ra: that any object coming between the shrine and the sun would be destroyed. In two hours, a total eclipse is due over the Nile delta. Unless you can find the shrine and destroy it before the eclipse is complete, the Moon will disappear from the sky forever, and its destruction will have devastating consequences for the Earth.

This is the premise for Total Eclipse, a 3-D graphics adventure. Using the ►



Tracking time, resources, bearing and health are important in Total Eclipse.

same Freescape system of graphics modeling as Space Station Oblivion and Dark Side, the joystick or keyboard is employed to move forward and backward or turn right or left. The first-person view changes appropriately as you move. The distance you move and the angle of your turns can be adjusted to facilitate both rapid movement through open areas and precise maneuvering in tight spots. When you're in Attack mode, you can move an aiming crosshair around the screen, while your position and view remain stationary.

You begin the game with a pistol, an unlimited supply of bullets, a wristwatch, a water bottle and a compass. These last three items are displayed at the bottom of the screen to indicate the amount of time remaining before the eclipse, the amount of water you have left, and your heading. In addition, a beating heart shows your current state of health.

The shrine is in the top of a huge pyramid, but to reach it, you must find your way through a labyrinth of rooms. Many rooms are locked, and you can enter them only if you have an ankh. Ankhs can be found in various rooms in the pyramid, as can treasure chests and water troughs and pools to replenish your water supply.

Although your pistol is sometimes used to defend against dart-shooting mummies, it's more often employed to activate switches. You can open treasure chests, blocked doorways and mummy cases simply by shooting at them. It's also possible, however, to destroy essential structures by firing carelessly, so don't shoot indiscriminately at everything you see.

Total Eclipse isn't without faults. For instance, the graphics of your surroundings, while colorful, are blocky and lacking in detail, and the animation is, at times, painfully slow. However, despite these problems, interaction with the game's three-dimensional world can draw you into the story in ways even a beautifully photographed film cannot. *(Spotlight Software; distributed by Cinemaware, 4165 Thousand Oaks Blvd., Westlake Village, CA 91362. C-64/$29.95.)*

—BOB GUERRA
CHARLESTOWN, MA

SEARCH FOR THE TITANIC ...... B

Stay Dry While Exploring the Deep Seas

Prior to setting off in search of the most famous wreck in history, you must first gain the reputation of being an able "wreck hunter." Otherwise, you'll never obtain the funding necessary to get a Titanic expedition off the ground—or, in this case, over the water.

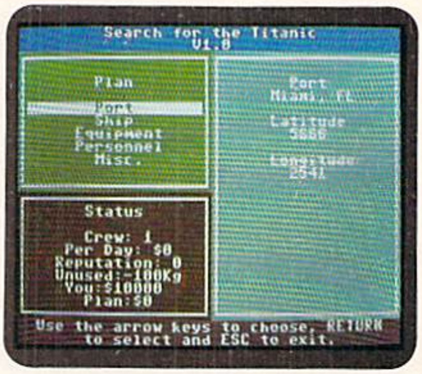
This game includes over 47 ports of call and 75 wrecks to explore. Plan to make 10 to 15 dives on different wrecks before you attempt the Titanic. Preparatory expeditions include renting or purchasing a boat, hiring a crew, buying supplies and selecting a port of call.

Financing your first few expeditions can be a nightmare in futility, because you must depend on agency grants. As you become proficient at diving on wrecks, however, acquiring money for bolder undertakings becomes easier. With monetary resources, you can hire a crew and purchase more powerful equipment and the supplies necessary for a round trip.

Once you arrive in the general location of a wreck, you have to rely on specialized high-tech equipment like weather radar, sonar, suction tubes, magnetometers, bathyspheres and minisubs to do most of the dirty work for you. Of course, if you can't yet afford such equipment, divers will either make or break your efforts to become a famous wreck hunter.

Navigating is accomplished by matching up a set of X and Y coordinates to those of the predetermined wreck sites in the documentation. Once you're close to a wreck site, you enter Exploration mode and begin the tedious task of searching for the sunken vessel.

There are various graphics screens used to work a wreck sight: diving, sonar, camera platform and piloting screens. As you slowly map out the ocean floor, you may eventually happen upon the wreck and, depending on how much effort you want to expend, even come across valuable artifacts. Discovering wrecks and artifacts increases your reputation points. Once you've amassed enough of these points, you can attempt a dive on the Titanic.


```
Search for the Titanic
V1.8

Plan                Port
Port                Miami, FL
Ship
Equipment           Latitude
Personnel           5666
Misc.
                    Longitude
                    2541

Status

Crew: 1
Per Day: $0
Reputation: 0
Unused:-100Kg
You:$10000
Plan:$0

Use the arrow keys to choose, RETURN
to select and ESC to exit.
```

Careful planning of your expeditions is a top priority in Search for the Titanic.

Search for the Titanic is by no means a graphics extravaganza or white-knuckled adventure—but it wasn't meant to be. Strategy, planning and luck all play a part, and the graphics do a nice job of conveying critical information in an easy-to-grasp manner. Moreover, a graphics disk included with the program contains digitized pictures of the actual Titanic site. (Since the program occupies two disks, plan to do a lot of swapping.) The manual is thoughtfully laid out and well written.

In any case, Search for the Titanic does a good job of conveying a feel for the frustrations and excitement of underwater exploration. The program stresses the need for careful planning and resource conservation. Believe me, searching miles of empty ocean can be exasperating and even boring, but once you find your first sunken galleon, I'll bet that you'll be sailing back to port with another expedition in mind! *(Intracorp, Inc., 14160 SW 139th Court, Miami, FL 33186. C-64/$29.95.)*

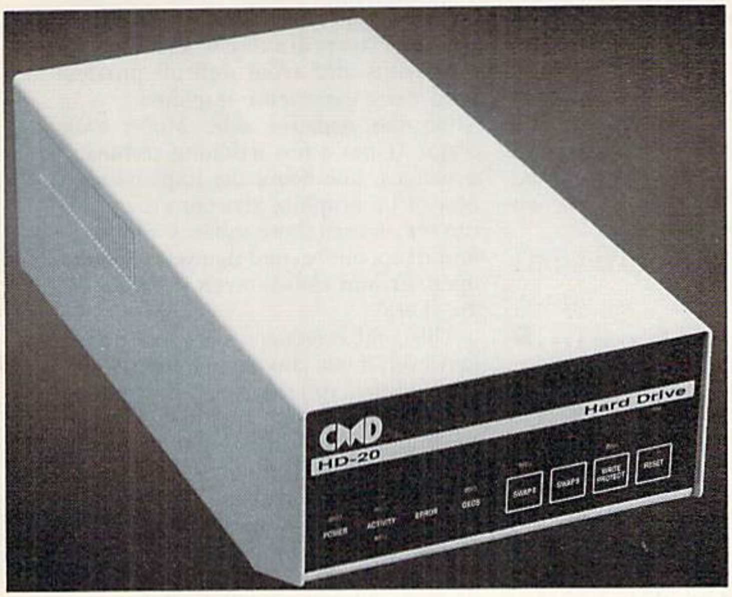
—JOHN RYAN
BILOXI, MS

STORM ACROSS EUROPE ...... A

At last, the war game I've been hoping for—one with snappy and effective graphics and a simple interface that doesn't have me digging through the manual every few turns.

SAE is a full-scale, joystick-controlled, WW II battle simulation that follows the conflict in Europe from 1939 to 1945. It lets you re-create the entire war on colorful, detailed maps. It plays extremely fast compared to other war games, and many of the historical scenarios can be completed in a single sitting. ►

CMD Taking your 64 and 128 into the 1990's CMD



CMD HardDrives

- Four modes of operation: 1541, 1571, 1581 emulation modes for compatibility and Native mode with up to 16 Mb partitions.
- Built-in *GEOS™ and *CP/M™ compatibility.
- Standard capacities of 20, 40 and 100 Megabytes with custom capacities in excess of 200 Megabytes.
- Serial bus interface supports Standard Serial as well as high-performance Fast Serial and JiffyDOS protocols.
- 3 1/2" SCSI technology allows for quiet, cool reliable operation in a compact case about the same size as a 1581 drive.
- Can be interfaced with Amiga, IBM - compatible and Macintosh computers, allowing you to take it with you when you upgrade.
- Built-in real time clock for time and date stamping of files.

Our goal was to design a reasonably priced drive which was easy to use, and we've done just that. We challenge you to compare our HD series to any other hard drives ever available for the 64 and 128. CMD HD hard drives utilize the latest hardware technology and operate using the most innovative disk operating system ever made available to 64 and 128 owners. CMD engineers were inspired to create a hard drive which overcomes the problems inherent in earlier designs. As a result, the evolution of new features and a level of compatability previously thought of as impossible in any disk drive has become reality. Features such as the SWAP function allow you to operate software which only recognizes a specific device. The built-in SCSI controller allows expansion of your system to over 4 Gigabytes of storage, as well as allowing connection to other types of computers. So while other companies are willing to let your 64 or 128 become obsolete, CMD is taking your 64 and 128 into the '90's. CMD HD Hard Drives are available now, order yours today !

** GEOS is a Trademark of Berkeley Softworks • CP/M is a Trademark of Digital Research*

HD-20 $599.95 • HD-40 $799.95 • HD-100 $1299.95

JiffyDOS™ Version 6.0

The Ultimate Disk Drive Speed Enhancement System

- **Ultra-fast multi-line serial technology.** Enables JiffyDOS to outperform Cartridges, Burst ROMs, Turbo ROMs, and Parallel Systems – without any of the disadvantages.
- **Speeds up all disk operations.** Load, Save, Format, Scratch, Validate, access PRG, SEQ, REL, USR & direct-access files up to **15 times faster!**
- **100% Compatible – or your money back.** Guaranteed to work with all your hardware and software, including copy-protected commercial programs.
- **Uses no ports or extra cabling.** The JiffyDOS ROMs upgrade your computer and drive(s) internally for maximum speed and compatibility.
- **Easy Installation.** No experience or special tools required for most systems.
- **Supports C64, 64C, SX64, C128, C128D, 1541, 1541C, 1541-II, 1571, 1581 & more**
- **Can be completely switched out.** If ever necessary, the flip of a switch returns you to a 100% stock configuration – without resetting or powering down.
- **Built-in DOS Wedge.** Plus 17 additional commands and convenience features, including file copier, screen dump, directory menu, and single-key load/save/scratch.

- **Built-in two drive file copier.** Copy PRG, SEQ, REL and USR files between two drives of any type or to and from REU's. Great for quick backups and moving programs and files between 1541, 1571 & 1581 drives and REU's.
- **REU support.** The JiffyDOS commands now fully support Commodore REUs (RAM Expansion Units) running under RAMDOS. Access your REU just like a disk drive without having to load special wedge utilities.
- **Enhanced text screen dump.** Automatic screen mode recognition and printing of uppercase/graphics & lowercase characters.
- **Redefinable 64-mode function keys.** Allows you to easily redefine the function keys to suit your specific needs.

- **Supports CMD HD Series Hard Drives and RAMLink.** Enhances the performance of CMD's new line of integrated C64/C128 products.
- **1581 support.** Copy programs and files from 1541 and 1571 drives to any partition on your 1581. Select partitions easily with just a few keystrokes.
- **Quick printer output toggle.** A simple 3-key command switches output from screen to printer and back with ease. Eliminates having to type the complicated OPEN4,4:CMD4 and PRINT#4:CLOSE4 command sequences.
- **Adjustable sector interleave.** Enables you to increase disk-access performance even with hard-to-speedup software.

Hard Drive Ordering Information

Add $25.00 for Shipping and handling per drive. All orders shipped UPS ground. Other methods available - call for details. Please allow 2 to 4 weeks for delivery. US prices quoted. Foreign orders call for pricing and shipping details. Pricing subject to change without notice.

JiffyDOS Ordering Information

C-64/SX-64 systems $59.95; C-128/C-128D systems $69.95; Add'l drive ROMs $29.95
Please specify computer (w/ serial number) and drive(s) when ordering.

Add $4.25 shipping/handling per order, plus $3.00 for C.O.D., APO, FPO, AK, HI, PR & Canada. $10.00 add'l for other overseas orders. MA residents add 5% sales tax. VISA/MC, COD, Check, Money Order. Allow 2 weeks for personal checks. U.G. & Dealer pricing available. Call or write for more information. Version 5.0 owners please call for upgrade information.

Creative Micro Designs, Inc. 50 Industrial Dr., P.O. Box 646, East Longmeadow, MA 01028
Phone: 413-525-0023 FAX: 413-525-0147

Circle 166 on Reader Service card.

A combination of three human or computer-controlled players is supported as Allied, Axis or Russian forces. Key aspects can be randomized so that no two games will ever be alike.

The hierarchy of available menus is extensive and comprehensive. You can access options to transfer industrial points to an allied nation, effect staff changes, create and remove armies, check on the demographics, and so on.

SAE's documentation is weighty, but its logical and ordered layout lets you begin play immediately.

Intermediate and advanced war gamers will certainly find SAE refreshing and may loath reverting to the old style of play after booting up this gem. Beginning war gamers will still have to put up with the required learning curve, but I think that with a little time and effort, they'll find SAE the very best this genre has to offer. *(Strategic Simulations, Inc.; distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/$39.95.)*

—John Ryan

Bad Dudes .... B+

This program should really be called "Bad Dude," since there is no two-player option. In an effort to retain quality graphics and animation, the designers chose to forgo the Cooperative mode. That drawback aside, this street-fighting contest is better than Double Dragon, a game with which it's often compared.

You're pitted against an odd assortment of thugs, including ninjas, the fire-breathing Karnov, a padded attacker sporting deadly spikes, a killer who can duplicate himself in the heat of battle, and a host of others. Their boss, the Dragon Ninja, is holding the President captive in his hideout. Your mission entails kicking, punching and stabbing your way to save the President and defeat the crime lord once and for all.

You begin with five lives, and since your character must be hit 13 times in order to lose one life, you can stay alive for quite some time. However, time is another enemy. You're allowed four minutes to complete a screen. If you don't, the game is over, regardless of how many lives you have left.

Controlling your character is an easy matter. Simple joystick commands make him walk, crouch and jump to the upper or lower levels.

My major complaint with Bad Dudes has to do with the written description on the back of the packaging, which is woefully inaccurate, and with the documentation, which is only slightly better. Despite what you read, there are no vicious dogs on the prowl and no numchucks to increase your firepower.

Nevertheless, Bad Dudes is more fun than most games of this sort. Rescuing a real President may be a pipe dream, but a computer "Bad Dude" has a good chance of coming home a hero. *(Data East USA, Inc., 470 Needles Drive, San Jose, CA 95112. C-64/$29.95.)*

—Len Poggiali

Skate Crazy .... B

Stunts and speed can win you the coveted championship in this roller-skating competition. Swaying the judges in your favor rests on your ability to jump over obstacles, land safely, perform turns and skate backward.

During most of the game, your view is of the "rink," a parking lot complete with gates (to pass through), tin cans (to knock down), odd junk (to leap over), and so on. There are also potholes, oil, glass and sand to avoid.

Skate Crazy's graphics offer a lively display of various scenes, with frills ranging from gangs to giant rats, and you can change between games (Car Park Challenge and Championship Course) without losing the level you had previously achieved.

Performing as a daredevil and gliding about on a pair of slick skates is fun and different from my usual run of software activities. Unfortunately, in parts of the game where I have to waggle my joystick back and forth to increase speed, my direction tends to alter. Still, I got the hang of things after a while.

Playing this game lets me experience a new form of software motion staged in a familiar arcade setting. *(Virgin Mastertronic, 18001 Cowan St., Irvine, CA 92714. C-64/$9.99.)*

—John DiPrete

Might and Magic II .... C+

A sequel to a popular game is always a risky proposition. It must not only live up to the standards of the original, but also include some improvements.

The results of the Might and Magic sequel are mixed. On the plus side, a handy new feature is auto mapping, which draws a map of, and lets you access, every area you visit.

Also new is the ability to include non-player hirelings, who can join your party and increase its strength. Two new classes of warriors—barbarians and ninjas—have also been added.

This game boasts 60 different map areas, over 90 spells and more than 200 objects. Players are free to follow their own paths and avoid difficult puzzles until more experience is gained.

On the negative side, Might and Magic II has a few irritating technical problems, one being the implementation of its graphics viewing area. You can see an area three squares wide and four deep, but beyond that you see only open air and clouds, even if buildings are there!

The combat sequences are well done. However, if you choose an option other than fighting, you're faced with multiple-choice menus asking what you want to use from your inventory—but there's no list! If you don't remember what you have, you must retreat and take a look.

Also, there are many times when you're investigating an area and have no clue that an object exists on a certain square until you actually land there.

Aside from these problems, if you're a dyed-in-the-wool RPG fan, Might and Magic II will give you hours of computing fun. *(New World Computing; distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/$39.95.)*

—Art Lewis Kimball

Indiana Jones and The Last Crusade .... E

The C-64 version of Indiana Jones and the Last Crusade is an interesting example of a climb-and-run arcade game. Unfortunately, however, it suffers from a number of shortcomings.

For instance, the sound is generally lackluster, and much more of the screen could have been used to display the program's action. Also, largely due to its relatively slow pace, the game just doesn't succeed in re-creating the movie's excitement.

In addition, there is a more serious defect in the program: it causes the disk drive motor to run without stopping throughout a game. [*Editor's note: A spokesperson from Lucasfilm confirmed that the drive motor on their C-64 system also continued running after the program had loaded, and they have no version that shuts the motor off.*] Since this constant activity could burn out the motor, extended play of Indiana Jones and the Last Crusade is definitely not recommended. *(Lucasfilm; distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. C-64/$29.95.)*

—Walt Latocha ■

ATTENTION GEOS USERS: THE WAIT IS OVER.

For everyone who's ever waited a tad too long for a GEOS screen to redraw itself or an application to load, congratulations. The wait is over. Your chips have come in.

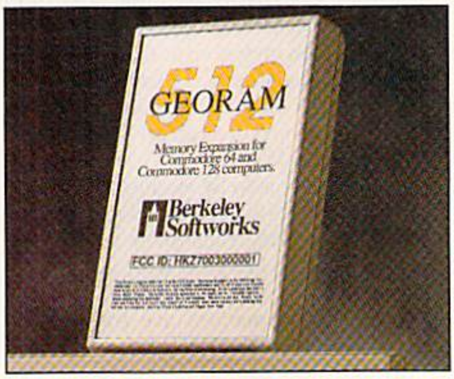
The GEORAM expansion board—for both 64's and 128's—is here.

MORE MEMORY, LESS WAITING.

Developed exclusively for GEOS-equipped Commodores, these babies pack an unbelievable 512K of extra memory, which propels GEOS into light speed productivity. Accessories pop up in an instant. Screens redraw in a wink. And applications scream out in a frenzy as you whip them along with your mouse or joystick.

"An additional 512K of memory... is a really impressive upgrade... The usefulness of this becomes evident when using GEOS, as it can practically eliminate the... disk access you normally encounter." —*Run* Magazine

Hard to believe? Believe it. GEORAM's disk transfer rate is literally 35 times faster than the 1541, 1571 or 1581 disk drive. Which has the industry chattering almost as much as when GEOS first arrived on the scene:


512
GEORAM
Memory Expansion for Commodore 64 and Commodore 128 computers.
Berkeley Softworks
FCC ID: HKZ7003000001

"The difference between operating... on a 640K machine instead of a 128K machine could be compared to flying a jet and walking. Tasks that would normally cause a delay while the disk was accessed run at the speed of light..." —*Commodore* Magazine

Pretty heady stuff. But every word of it's true. Because GEORAM stores everything electronically. Which means your Commodore doesn't waste time spinning magnetic disks searching for data.

That not only increases your machine's performance. It also increases yours. Because the time you used to spend waiting is being put to better use drawing, writing or doing any of the thousands of things you're using GEOS for.

"RAM expanded C-series machines... running under the GEOS kernel—are nearly as fast and flexible as the powerhouse Mac's, ST's, Amigas and PC's." —*Computer Shopper*

So if you'd like to delete the delay, call us toll free at 1-800-888-0848 and order your GEORAM card today. You'll discover the difference in no time.

"It's the same GEOS, but unless you experience RAM expansion, you can't imagine the transformation... Some operations run a few seconds quicker, others (such as deskTop utilities) seem to appear before you select them... My RAM expander is the most cost-effective purchase I've ever made. Try one, and you'll never go back to magnetic media." —*Computer Shopper*

The GEORAM Expansion Card. It may have been a long time coming, but it's definitely been worth the wait.

Not available in retail stores!
No external power supply needed!

Mail orders: Send name, address, city, state, zip and phone number along with check or money order for $124.95 plus $4.95 for postage and handling, made payable to Berkeley Softworks (Do not send cash) to: Berkeley Softworks Fulfillment Center, 5334 Sterling Center Drive, Dept. G1 Westlake Village, CA 91361. Allow two to four weeks for delivery.

GEORAM
1-800-888-0848
extension 1743

Berkeley Softworks

The brightest minds are working with Berkeley.

Circle 138 on Reader Service card.

MAIL RUN

Readers describe unusual applications, voice concerns and ask for Label Base enhancements.

METHINKS THOU DOST PROTEST ENOUGH!

I'm writing in reaction to the general tone of the more current issues of *RUN*. I note a slight anger toward software companies for their general abandonment of Commodore 8-bit machines in anything other than game software.

Videomax Industries (PO Box 905, Eugene, OR 97440) has been developing productivity software for the C-64 and C-128 for many years. At one point we also abandoned 64/128 support, but the volume of protest mail we received convinced us to resume software support.

—JOHNMICHAEL MONTEITH
PRESIDENT
VIDEOMAX INDUSTRIES

TECHNOLOGY AT HAND

Every once in a while a breeze comes along and breathes new life into a stagnating world. Editor-in-Chief Dennis Brisson's editorial (RUNning Ruminations, October 1989) was one of those zephyrs.

Software development, other than games, has stagnated to three subjects: word processors, spreadsheets and databases. There is still a virtually untapped area in computer interfacing, which lets the computer control and monitor the household in many ways. Graphics is still wide open when it comes to animation. Speech synthesis and recognition has been dropped.

The technology is at hand; the time is right. The rest is up to what the mind can conceive. Don't forget, many of the greatest inventions came right out of home workshops.

—JAMES W. PATE
OAKLAND, CA

UPDATING 64/128 USERS

I, too, agree with reader John D. Miller (Mail RUN, "In Commodore We Trust?", October 1989) that Commodore is determined to have all 64 and 128 users update to Amiga computers. They may drive the once faithful into the welcoming arms of their competitors! Having accumulated a substantial program library, I cannot conceive of junking them for a different computer system. I even bought a C-128D for backup in case some catastrophe wipes out my C-128.

—GEORGE J. CLARK
POINTE CLAIRE, QUE., CANADA

UNUSUAL APPLICATIONS REDUX

In response to your call for unusual applications ("Sculptor, Lawyer, Editor-in-Chief," *RUN*, August 1989), I use my C-64 every day in my work as a freelance technical translator of German to English. German documents arrive by mail or by modem to my MCI Mailbox, and I send them back in English. I type the English version on screen as I'm reading the German document. I proofread short documents directly. For longer documents, I run it through an 85,000-word spelling checker.

If delivery is to be via modem, I type my invoice directly at the bottom of the document and transmit it to the customer's MCI Mailbox with a Commodore 1670 modem at 1200 baud. Any necessary hardcopies are printed out on a Commodore DPS-1101 daisywheel printer.

In the meantime, my two part-time typists have Leading Edge and Apple IIGS computers. I'm sorry, but I can't help them figure out how to run Word Perfect or anything else. They will have to buy 500-page books on the subject or take courses. I'm too busy earning money wth my C-64 to delve into the mysteries of their machines.

—CHESTER E. CLAFF
BROCKTON, MA

Five years ago, the local newspaper decided to upgrade from typewriters. Their computer of choice was the C-64—five of them. Today, the text of the Oxford (Alabama) *Sun* (circulation 33,000) is composed entirely with the 64 and, believe it or not, one of the first word processors to hit the market, Easy Script. When asked why the paper hadn't upgraded to a more modern processor, publisher John Childs simply said, "It hasn't been necessary."

—NORMAN MORRISON
OXFORD, AL

THE NATURE OF THE BEAST

I think the game reviews in Software Gallery are great; they help me to make the right choices. However, by the time the review comes out, the game has been in the stores a few months. Why can't a review get published in or right after the month that the game hits the retail stores?

—CHRIS MADISON
GLENDALE, NY

Unfortunately, not only must we work three to four months ahead of publication dates, but it takes time for software developers to send us their programs, which must then be forwarded to our reviewers, who in turn need a few weeks to get copy back to us. Such is the nature of the publishing beast.

—EDITORS

LABEL BASE ENHANCEMENTS

In the August 1989 *RUN*, Label Base works fine but I'd like to add another line to the address label. How might I do this?

—GARY E. WIGLEY
FORT WORTH, TX

For a routine that does this and more, see the Magic trick on page 6 of this issue.

—EDITORS ■

A CALL TO READERS

This page is your stage, so stand up and say a few words. Extend praise, air grievances or offer hands-on advice and information.

Send your letters to Mail RUN, 80 Elm St., Peterborough, NH 03458. Each letter must include the writer's name and complete address. RUN *reserves the right to edit letters for style, clarity and space.*

DAMARK
INTERNATIONAL, INC.

THE *"GREAT DEAL"* CATALOG
ORDER TODAY!
1-800-729-9000

PACKARD BELL
America grew up listening to us. It still does.

PACKMATE 286 COMPUTER WITH VGA COLOR MONITOR

Computing is FAST and easy with the 30 MB hard drive power of this Packard Bell 286 Computer and VGA Color Monitor. An 80286 microprocessor, 2 disk drives and high resolution VGA color monitor make this computer a must--ideal for desktop publishing!

- 80286 microprocessor (operates at 12 MHz). • One 3-1/2" 1.44 MB floppy drive.
- One 5-1/4" 1.22 MB floppy drive. • 30 MB hard drive. • 1 MB RAM on motherboard: expandable to 3 MB. • Includes VGA 14" color monitor & VGA card.
- High res. monitor : 480 x 600, & 256 colors. • IBM compatible. • AT compatible.
- 8 expansion slots. • Dual FDD/HDD controller. • 2 half height drive cavities exposed.
- 1 half height drive cavity enclosed. • 2 serial ports. • 1 parallel port.
- System configuration in CMOS with battery back-up.
- Included software: MS DOS 3.3 & GW BASIC. • 145W Universal power supply.
- Socket for 80287 co-processor on motherboard. • Zero wait state.
- **One Year Warranty! • Factory New! Factory Perfect!**

30 MB Hard Drive! 3-1/2" & 5-1/4" Drives!

Manufacturer's Suggested Retail:
$3,449.00

DAMARK PRICE:
$1499
Item No. B-1759-132142
Insured Ship/Hand.: $39.00

TOTE VISION

FAX-PHONE-COPIER

- 9600 bps transmission speed with automatic fallback.
- 5 page auto document feeder.
- Coded 100 number speed-dial-memory.
- Super fast transmission speed of 15 seconds per page.
- Worldwide compatibility with all G3 faxes.
- Multi-function telephone. Auto-redial, speaker monitor, hands free dialing.
- Manual, automatic & delay answering modes.
- External telephone jack for remote answering.
- Desktop copier function.
- 32-character LCD of time, date, and serves as a prompter.
- Transmission I.D. prints your name, number, date and time on each page sent.
- Transmission delay for faxing documents after hours.
- Confirmation report.
- Model #: HF 300.
- **One Year Warranty! 90 Day Labor.**

FACTORY NEW! FACTORY PERFECT!

Manufacturer's Suggested Retail:
$1,184.95

DAMARK PRICE:
$599
Item No. B-1759-132084
Insured Ship/Hand.: $12.00

FUJITSU

LASER PRINTER

- Personal, compact page-printer, 16" footprint.
- Resident emulation: HP Laserjet Plus.
- 640 KB system RAM expandable to 4.6 MB.
- Two top mounted hoppers.
- Printing speed: letter 5.3 pages per minute; legal 4.5 pages per minute.
- Graphics capable. • 300 x 300 dpi resolution.
- LED head/electro-photography printing.
- Three IC card slots for extra fonts & emulations—over 100 available.
- Centronics interface.
- RS232C interface.
- Three Resident fonts included: Courier 10, Portrait & Landscape.
- Dim.: 6.7" x 16" x 15.7". • Wt.: 41 lbs.
- **Full Warranty—45 days on sight. 10-1/2 mo. through authorized service center.**
- **Factory New & Perfect!**

16" footprint. Two 150 sheet paper hoppers.

Mfg. Sugg. Retail
$2,555.00

DAMARK PRICE:
$999
Item No. B-1759-131805
Insured Ship/Hand.: $69.00

ZENITH

TURBOSPORT 386 PORTABLE LAPTOP COMPUTER

- 80386 32-bit processor, 12/6 MHz (switchable).
- 40 MB (28ms) hard drive.
- One 3.5" 1.4 MB floppy disk drive.
- 100% IBM compatible. • 2 MB RAM.
- "Page-White" fluorescent backlit LCD display, 10.5" viewing area. • MS-DOS 3.21 included.
- Supports: MS OS/2 version 1.0, Xenix, & also Microsoft Windows/386 environments.
- Socket for 80387 numeric coprocessor.
- Zero wait state.
- Internal Hayes 2400 Baud modem.
- Serial and parallel printer ports.
- Resolution: 640 x 400 pixels.
- 79-key full function detachable keyboard.
- Real time clock and calendar.
- "Fast" charge NiCad battery pack included.
- AC adapter. • Dim.: 13.25"W x 14.75"D x 4.75"H.
- Weight: 14.7 lbs. • **One Year Warranty!**
- **Factory New & Perfect!**

386 40 MB Hard Drive!

Mfg. Sugg. Retail:
$8,499.00

DAMARK PRICE:
$2999
Item No. B-1759-128686
Insured Ship/Hand.: $19.00

LOGITECH

M8 HIGH RESOLUTION MOUSE W/ PAINTSHOW

FACTORY NEW! FACTORY PERFECT!

- High resolution: 200 dots per inch.
- 100% Microsoft Serial Mouse compatible, fully supports Microsoft windows.
- Includes Paint showpaint program.
- Includes drivers and menu software for popular applications including DOS, Framework, Symphony, SuperCalc 3/4,Word Perfect, Wordstar.
- Compatible with IBM PC, AT, PS/2 and 100% compatible systems.
- Includes 9-25 pin adapter.
- Exceeds 300 miles in a lifetime.
- Two fully debounced control buttons.
- Serial interface device.
- 6' flexible cable.
- UL approved FCC class B.
- Color: Light Gray.
- Dim.: 1"H X 3.7" L X 2.3"W.
- Weight: 2.9 oz. (w/o cable).
- **3 Year Warranty!**

Compare At:
$69.00

DAMARK PRICE:
✈ **$29**
Item No. B-1759-126989
Insured Ship/Hand.: $5.00

FOR FASTEST SERVICE
CALL TOLL FREE
1-800-729-9000
CUSTOMER SERVICE: 1-612-566-4940

VISA MasterCard DISCOVER

QTY	DESCRIPTION	ITEM #	S/H/I	PRICE

DELIVERY TO 48 U.S. CONTINENTAL STATES ONLY

NAME ______
ADDRESS ______
CITY ______ ST ___ ZIP ______
PHONE ______

FEDERAL EXPRESS
RUSH DELIVERIES
ONLY $6.95 plus normal S/H. Look for the plane & ask your operator to "ship it FedEx® Delivery Services".

SUB TOTAL	
in MN add 6% Sales Tax	
Total S/H/I	
GRAND TOTAL	

☐ Check/Money Order ☐ VISA SIGNATURE ______
☐ MasterCard ☐ Discover CARD NO. ______ EXP. DATE ______

B-1759

Send To: DAMARK INTERNATIONAL, INC., 6707 Shingle Creek Parkway, Minneapolis, MN 55430

Circle 48 on Reader Service card.

TRACY THOMAS

Online, In Touch, Out of Sight

Tune in and turn on to telecomputing to bring people, events and numerous services into your home.

Writers, probably more often than other people, keep an eye on their mailbox. These receptacles are our houses of worship, altars that receive our never-ending correspondence and, occasionally, even a paycheck or two. Of course, Sundays, holidays and geographical distance have always hampered the U.S. mail service, but now you can communicate across the country by computer in a matter of seconds, no matter what day it is.

Moreover, while paychecks are still occasional, I can do all my banking and a goodly amount of shopping, follow investments, access immense research facilities, chat with people from all over the world, and even arrange a vacation from the comfort of my home. That's the wonderful world of telecommunications!

Now, before you start muttering about stop-bits, protocols and handshaking, rest assured that a small investment and a bit of insight—which this article intends to provide—can get you online with little fuss. Your first two or three forays may be confusing, but with a little preparation and a clear idea of what you want to accomplish, telecommunicating will become second nature.

NUTS AND BOLTS

After entertainment and productivity, telecommunicating is the third most popular application among Commodore owners, and studies have shown that modems rank just behind printers as the most coveted computer peripheral. A modem is your link to the online world, a bridge between your telephone and the user port at the back of the computer. It's called a modem because it MOdulates the binary information emitted by your computer into analog signals that can be sent over ordinary telephone lines. Conversely, it DEModulates analog signals into binary bit streams that are understandable to a computer. A modem is not the magic box many make it out to be; it's more of a translator than anything else.

Modems are categorized by the "baud" rate at which they send and receive data. Rates of 300, 1200 and 2400 baud are the most common. The higher the rate, the faster you can download (receive) or upload (send) a file, which often means savings when you're calling long-distance or crawling around a commercial bulletin board.

The most popular Commodore modem is the 1200-baud 1670, which you can purchase from mail-order houses for between $60 and $75. The older Commodore 1660 is a 300-baud modem that's been selling for less than $30 through many retail and mail-order houses. While the 1660 appears to be a real value for getting online quickly, I suggest you buy the 1670 instead, for, as you'll see later, the time it saves on the commercial boards will quickly pay the difference (usually within the first month of use!).

For the more adventurous, Supra Corporation (1133 Commercial Way, Albany, OR 97321) manufactures a Commodore-specific 2400-baud modem ($219 retail) that will ►

By JOHN RYAN

ILLUSTRATED BY TROY THOMAS

turbo-charge your online time. Although commercial boards usually charge more for 2400-baud access, you'll still realize savings, especially when calling long-distance. Other third-party Commodore-compatible modems are available, as well. Inquire at your local computer store or user group.

The 1670 offers many of the features that make telecommunicating easier, including autodial and autoanswer, rotary and pulse dialing, and an audible speaker. Any modem you purchase, regardless of make or model, should offer these now-standard features.

OF TERMINALS AND PROTOCOLS

For all their power, modems are stupid animals on their own; they need a terminal program to tell them what to do. The meaning of "terminal" here is a holdover from the early days of computing, when users typed away on "dumb" terminals connected to mainframes via serial cables or telephone lines. These terminals had no CPUs of their own; they relied on the host mainframe for computing power. Today, a terminal program effectively turns your Commodore into such a terminal, slaving it to the computer you're calling.

With any good terminal program, you can store a series of telephone numbers in its directory and have them automatically dialed. Most also offer automatic redialing and a capture buffer, usually a 16K–64K area in computer memory reserved to store text as it appears on-screen. This is handy, especially for calling long-distance boards. With a buffer you can capture a whole series of messages, save them to disk, then log off and read them at your leisure with just about any word processor.

Before you send or receive text in your terminal mode, you must decide on the protocol to use. "Protocol" here refers to the type of transmission error-checking a terminal uses to ensure that each block of data sent or received is error free. There are almost as many protocols as there are commercial information services, with Punter and Xmodem being the most common in use with Commodores. CompuServe has its own proprietary protocol called CompuServe B, which is supported by many popular terminal programs. Recently, protocols such as Ymodem, Zmodem, Wxmodem and Kermit have also increased in usage and familiarity.

Don't worry too much about protocols in the beginning. Commercial boards and BBSs usually tell which ones they recognize. While Xmodem is normally the slowest protocol, it's also one of the most reliable. You may want to stick with it until you get your online legs under you.

GETTING ABOARD

Before you rush off and purchase a modem and terminal program, ask yourself *why* you want to get online. There are many possible reasons, one of the most popular being the online availability of thousands of public domain (PD) programs. Most computer bulletin boards and commercial information services offer huge libraries containing everything from educational programs to games to utilities. These PD programs can be had for the price of a telephone call (free if local) and for the few cents a minute it may cost to access a commercial service.

Some programs available online are commercial-quality "shareware," where a small voluntary fee (usually $5–$10) registers you for updates, newsletters or more powerful future versions. Most of the heavy-duty PD utility, terminal and productivity software I have are shareware, and they are well worth the donation.

People also purchase modems so they can "chat" with others, whether across town or across the nation. All computers speak basically the same language—the American Standard Code for Information Interchange, or ASCII—so Commodores can talk to Apples, IBMs or even Cyber 180 mainframes. As a result, you and a friend can chat by simply dialing the phone and letting your terminals connect, regardless of your hardware or software. (See Table 1.) In fact, many terminals offer a "Chat mode," which splits the monitor screen into two sections, one for incoming text, the other (usually the bottom two or three lines) where you can type messages without having them scrambled by what's coming in.

Computer bulletin boards are another popular pastime for onliners. Almost every town has at least one BBS, usually run by a local user's group or dedicated hobbyist. (See Table 2.) BBSs are not simply message bases. Most offer specialized conference areas, software libraries, limited electronic mail (E-mail) capability, and even online games.

Moreover, BBSs are cheap sources of PD programs, many of which are uploaded to them by the BBS's system operator (SYSOP) or members. (See Table 3.) New BBS members are normally limited to 30–60 minutes online, but most boards grant additional time whenever you upload a new file to them. Where do you get these new files? From other BBSs or commercial services, of course. (You can access *RUN*'s own BBS, the RUNning Board, by calling 603-924-9704.)

THE MEGA BOARDS

Commercial BBSs are often referred to as information services or networks, and you may already be familiar with some, such as CompuServe, GEnie and QuantumLink, simply from reading magazine advertisements. These services (see Table 4) are vast clearing houses for information, offering everything from chatting and news to online shopping and huge software libraries. In return, you may pay a flat monthly fee and/or an hourly online charge, plus maybe a surcharge for special features such as stock market quotes and news retrieval.

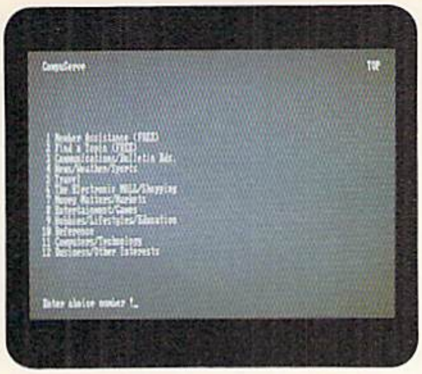
Most of the services can be accessed with an ordinary terminal program, and, unless you live in a rural area, you

Table 1. Chatting shorthand.

ACCESSING A CHAT LINE for the first time can be an exercise in confusion. Not only will most people seem to type faster than you, but they'll seem to enter a lot of gibberish as well! Sentences such as "LOL ;)" will run rampant across your screen, and you'll be into next month's paycheck trying to figure out what it all means.

Well, not to worry. The gibberish is simply codes that chatters have invented to express common ideas that would otherwise take several words or sentences. Below is a short list of the symbols you'll see most often. Notice the resemblance between the last ten symbols, when viewed sideways, to various facial expressions.

AFK Away from keyboard. (Someone's at the door.)
BRB Be right back. (Hold on while I put the kids to bed!)
TTFN Ta-ta for now. (See you later.)
LOL Laugh out loud! (Funny.)
HIYA Hello there!
BAK Back at keyboard.
;) Wink and a smile.
:) Happy face.
:(Sad face.
:p Tongue sticking out.
:* Here's a kiss.
:/ Perplexed/chagrined.
:o Surprised.
:' Tongue in cheek.
:+ Feeling sick.
>:< Frowning/angry.

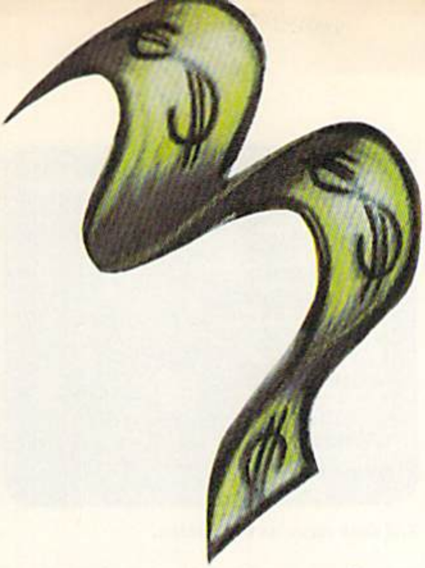


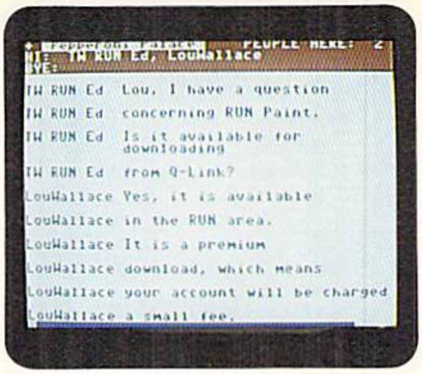
```
CompuServe                                    TOP

 1 Member Assistance (FREE)
 2 Find a Topic (FREE)
 3 Communications/Bulletin Bds.
 4 News/Weather/Sports
 5 Travel
 6 The Electronic MALL/Shopping
 7 Money Matters/Markets
 8 Entertainment/Games
 9 Hobbies/Lifestyles/Education
10 Reference
11 Computers/Technology
12 Business/Other Interests

Enter choice number !
```

CompuServe's wide panorama of choices.





```
                            PEOPLE HERE:  2
IN:  TW RUN Ed, LouWallace
BYE:
TW RUN Ed   Lou, I have a question
TW RUN Ed   concerning RUN Paint.
TW RUN Ed   Is it available for
            downloading
TW RUN Ed   from Q-Link?
LouWallace Yes, it is available
LouWallace in the RUN area.
LouWallace It is a premium
LouWallace download, which means
LouWallace your account will be charged
LouWallace a small fee.
```

RUN editors answer questions on Q-Link.

can probably save money by calling them through a local "node," such as Tymnet, Telenet or Redi-Access. These nodes use packet-switching technology to connect you to long-distance numbers as if they were local. (Packet switching transmits only data, not voice.) Some nodes assess you a $3-per-hour surcharge during non-prime-time hours (usually 6 PM to 8 AM)—and double that in prime time—in addition to the rates charged by the information service you connect to. The major services usually supply a list of local access numbers and their surcharges.

THE FIRST AND BIGGEST

The CompuServe information service is the largest in the country, and has the most varied and comprehensive offerings. It is undoubtedly the news king, whether for national, sporting, business, weather or aviation news. You may even specify what subjects you're interested in and have the news waiting for you when you log on.

Although CompuServe's Commodore libraries are not the largest around, there are enough files there to keep you busy for months. (To access them, type GO CBM after logging on.) CompuServe was the pioneer of online interactive games, and its Megawars series, where players battle away in the farthest reaches of space, are just as popular as ever. As do many services, CompuServe offers a wide variety of electronic shops where you can purchase everything from computer software to stereos.

Because CompuServe is the largest service, it can be expensive as well, something a novice telegamer may want to keep in mind. It's easy to get carried away by the novelty of going online, and it doesn't take long to run up a $100 charge when using CompuServe's premium services.

THE COMMODORE CONNECTION

As the only Commodore-specific service available, QuantumLink took a novel approach to telecommunications right from the start. While you negotiate your way around most boards through a series of numbered menus, Q-Link provides a graphics-oriented interface specific to Commodore computers. Because of this, you need the special terminal program supplied by Q-Link.

Among the dozens of services offered by Q-Link is the new Club Caribe environment (see *RUN*, November 1989), by far the most ambitious approach to online chatting in existence. Club members represent themselves with animated characters that they move around a simulated world. Traditional chatting is also available, however, through the People Connection, the most popular area on Q-Link.

Another unique service offered by Q-Link takes advantage of the Commodore's sound capabilities. Known as the Music ►

Table 2. Some user's groups' BBS numbers.

HERE IS A LIST of *access* numbers to some BBSs run by Commodore user's groups. We're sure that many more exist. Look for some in your area.

ALASKA
Anchorage Commodore User's Group: 907-349-7467

ARKANSAS
Commodore Computer Club of Fort Smith: 501-646-3399

CALIFORNIA
Fresno Commodore User's Group/64UM: 209-226-5313
Central Coast Commodore User's Group: 805-934-2216

FLORIDA
Central Florida Commodore User's Club: 407-291-8730

ILLINOIS
Board User's Syndicate: 312-331-4548
Fox Valley Pet User's Group: 312-888-1112

MASSACHUSETTS
Boston Computer Society: 617-227-9246

MICHIGAN
Kalamazoo Valley Communicators: 616-345-6362

NEBRASKA
Greater Omaha Commodore User's Group: 402-292-3628

NEW YORK
Commodore User's Group of Rochester: 716-621-5908

PENNSYLVANIA
Lower Bucks User's Group: 215-547-7009

SOUTH DAKOTA
Aberdeen Commodore Computer Club: 605-622-3880

TENNESSEE
Memphis Commodore User's Club: 901-362-0632

TEXAS
Tri-State Commodore User's Group: 806-355-3031

VIRGINIA
Peninsula Commodore User's Group: 804-886-0901
RACE +: 703-344-0857

WASHINGTON
Blue Mountain Commodore User's Group: 509-529-5226

GEnie can fulfill many of your wishes.

The Club menu on PeopleLink.

Part of a conversation on Delphi.

Connection, it lets you actually play thousands of music files while you're online.

Elsewhere on Q-Link, you'll find a huge software library of over 15,000 titles, news and entertainment features, Stocklink and travel services. There's even a *RUN* magazine area, where you can download programs from previous issues and leave messages for the *RUN* editors.

I DREAM OF GENIE

GEnie, the General Electric Information Service, has grown from an upstart challenger to CompuServe into a PD powerhouse. Its Commodore roundtable has the largest Commodore PD library of any online service; the offerings are simply staggering! If you can't find the program you're looking for here, you probably won't find it at all. Also, like CompuServe, GEnie offers one of the best E-mail facilities around; it's my favorite for sending letters or programs.

The service also offers comprehensive news gathering and retrieval, including Dow Jones News Retrieval and VESTOR, an electronic stock brokerage service that lets you track portfolios and buy or sell stocks and stock options. These financial services cost extra.

GEnie offers dozens of other interesting services, the most noteworthy of which are its special-interest roundtables and interactive flight simulator (complete with animated graphics!). Whether you're a writer, scuba diver or would-be ace, you'll probably find people with much the same passions around the GEnie lamp!

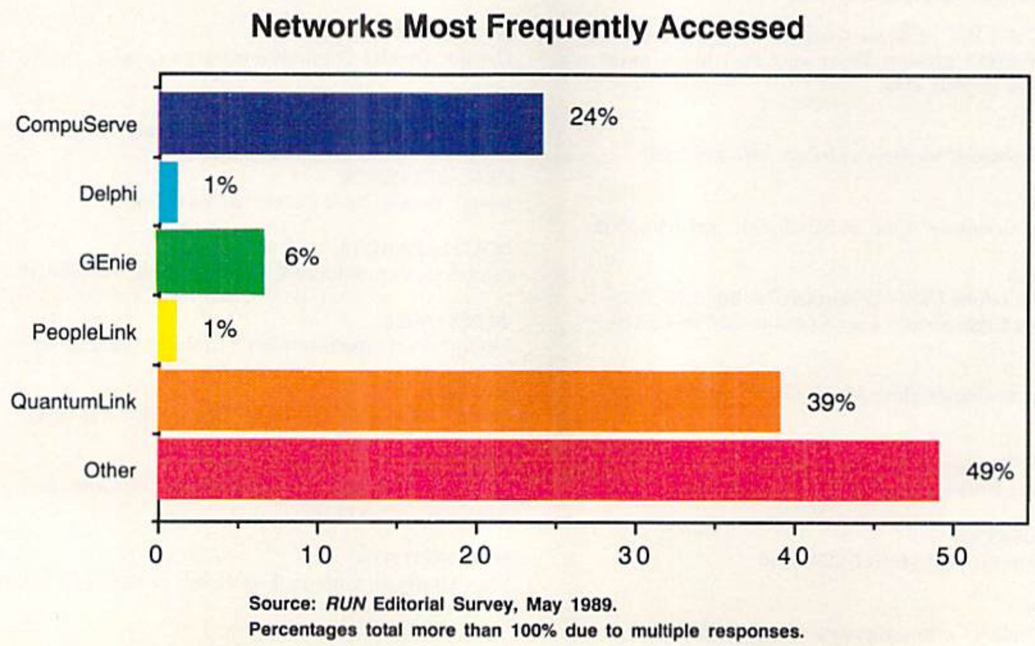
PLINKING ON THE KEYS

American PeopleLink (the choice of Plinkers, as they affectionately call themselves) is similar to GEnie in many ways, including its menu structure. While PeopleLink's Commodore 8-bit libraries are not quite as active as GEnie's, it is the preferred board for the Amiga community (and some of this is beginning to rub off on 8-bitters!). PeopleLink offers many online games and entertainment features. It also sports a very active message base and chat service, and tends to be more adult-oriented than other services (and when I say "adult," I mean "adult"). If you're a lonely heart or just looking to socialize, then PeopleLink is the place to meet.

THE ORACLE

The Delphi information service is a researcher's dream. Through its Lockheed Dialog Information Service, you can gain instant access to over 250 databases covering many areas. Medical, scientific, professional and news information is all there for the downloading, in addition to Delphi's extensive online encyclopedia. If you need facts and figures for a term paper or article, then Delphi is the place to go.

Of course, you'll find many of the same types of news, financial, advisory and travel-related services that are offered



Source: *RUN* Editorial Survey, May 1989.
Percentages total more than 100% due to multiple responses.

on the other boards. Delphi's reference guide is over 450 pages long, so the chances are that any service you require from a commercial board is available here.

TELECOMPUTING TIPS

All in all, there's a wealth of information available online to the Commodore enthusiast, and it's as close as your telephone. But keep in mind that, while the initial investment is relatively small, telecomputing can become expensive unless you use it with care. Try your hand at local BBSs to get comfortable with your terminal program before attempting national networks. BBSs are superb training grounds and offer a much more intimate setting for new users. Ask your questions there, and get to know your local online experts.

Having made the decision to join a national information service, you should carefully read their manual (if they supply one) and then monitor your time online. Keep in mind that each minute costs you money, and it's very easy to lose track of that valuable time. To keep your bills at a minimum, don't call commercial boards during prime-time hours; they charge up to $35 an hour for prime-time access. Moreover, avoid downloading files from a national network until you check your local BBS. Why spend an hour and $10 or $12 downloading what's available free from a local source?

I must admit that my telephone bills have jumped significantly since I became hooked on telecomputing. But considering the convenience and all the information and software I've acquired, I look upon it as money well spent. I think you will, too. ■

John Ryan, one of RUN*'s contributing editors, is an air traffic control instructor when he's not online or writing for the magazine.*

Table 3. Popular public domain downloads.

IN A RECENT MONTH, the files listed below were downloaded most often from the Commodore libraries of four large networks. As you can see, users were enthusiastic about terminal programs, disk utilities and Doodle! graphics files.

QuantumLink
1. DM/L—disk menu loader
2. Budget V.2—budget program
3. 3-D Menu Make—menu program
4. World Conquest—Risk-like game
5. Geolist2.0—GEOS utility

PeopleLink
1. CCGMS 8.8—terminal program
2. GGmichelle—graphics
3. JJbodis1.sda—graphics
4. Telefan1/4.mus—music
5. VDC Upgrade.txt—general interest

GEnie
1. Desterm102.arc—terminal program
2. DDgoforit—graphics
3. DDDream—graphics
4. Novaterm 8.2.SDA—terminal program
5. Library 128 v1.3a—utility

CompuServe
1. DTS128—cataloging program
2. DRZCK.IN—1571 ROM-checking program
3. UTILT.BIN—Basic 7.0 utility
4. FBACKUP, v. 2—three-minute disk back-up
5. 128LYN.BIN—Lynx file utility

Table 4. Major on-line information services.

NAMES, ADDRESSES AND PHONE NUMBERS for some of the most popular information services are listed below, along with their fees. Rates are hourly, except as otherwise indicated. PT stands for prime-time, NPT for non-prime-time. The telephone numbers listed are *information* numbers, not service access numbers.

Keep in mind that Telenet offers a special service, called PC Pursuit, that enables frequent users to connect to computers in over 75 cities nationwide without incurring long-distance charges. Some information networks (such as PeopleLink) even charge lower access rates if you connect via PC Pursuit. Telenet asks $30 for signing up, then $30 a month for 30 hours of access or $50 a month for 60 hours of access, plus an additional $3 for every hour over 60 in the month.

CompuServe
CompuServe Information Services
PO Box 20212
5000 Arlington Center Blvd.
Columbus, OH 43220
800-848-8199
Membership fee (including kit): $39.95
300 baud: PT and NPT, $6
1200/2400 baud: PT and NPT, $12.50
Additional charge for some executive services.

QuantumLink
QuantumLink Computer Services
8620 Westwood Center Drive
Vienna, VA 22180
800-392-8200
Flat monthly fee of $9.95, which includes 1 hour of "plus" time.
Plus-time service (300/1200 baud): 8¢ a minute.

GEnie
General Electric Information Service
401 North Washington St.
Arlington Heights, IL 60004
800-638-9636
Membership fee: $29.95
300 baud: PT, $18; NPT, $5
1200 baud: PT, $18; NPT, $6
2400 baud: PT, $18; NPT, $10
Additional charge for some gateway services.

American PeopleLink
3215 N. Frontage Rd., Suite 1505
Rockville, MD 20850
800-524-0100
Membership fee: $24.95
Redi-Access, 300/1200/2400 baud: PT, $17.95; NPT, $4.95/$5.95/$9.95
Telenet, 300/1200/2400 baud: PT, $19.95; NPT, $6.95/$7.95/$13.95
"Frequent Plinker" rates: 25 percent off
PC Pursuit users are charged a flat hourly fee of $3.50.

Delphi
Three Blackstone St.
Cambridge, MA 02139
800-544-4005
Membership fee: $49.95
All bauds: PT, $17.40; NPT, $7.20
Premium services: $21
The Delphi Advantage plan offers unlimited access to basic services for $24 a month.

Foosball 64

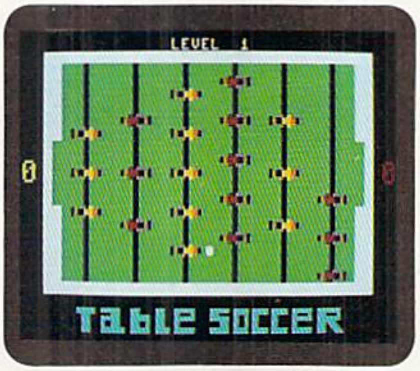
If your goal is to have a ball,
try playing Table Soccer.

◇

By TONY BRANTNER

Do you crave the thrill of athletic competition, but hate working up a sweat? Then take on either another armchair athlete or your C-64 in Table Soccer, a computer simulation of the tabletop simulation of the fast-paced field game. If you play against another person, two joysticks are needed; if you play against the computer, plug the one joystick into port 2.

The number of players and the ball speed—1 for slow and 2 for fast—are chosen at the opening menu. When you're playing the computer, you can also choose a skill level from 1, the easiest, to 9. For each choice, move joystick 2 up or down to display the number you want, then press the firebutton.



The on-screen action seems so real.

At the start of play, and after each goal, the ball is placed in the center of the field. During play, joystick 2 controls the yellow team and joystick 1 or the computer controls the red. Each team has three lines of players, but at any given time only the line that's closest to the ball is active. Move your joystick up or down to shift your active line from side to side, and press the firebutton to kick the ball toward the opposing goal.

One point is awarded for each goal, and the first player to score nine points is the winner. To play again, press the firebutton on joystick 2.

You can freeze play at any time by pressing the Commodore key, and then continue playing by pressing it again. The run-stop key returns you to the opening menu.

Tony Brantner is a carpenter by trade and a self-taught computer programmer. He enjoys the C-64 particularly for its excellent graphics capabilities.

Running Instructions: **Type in Listing 1 and save it to disk. Then run it to write a file called Soccer ML. To play, load and run Soccer ML.**

Listing 1. Table Soccer program. (Available on ReRun disk. See card at page 36.)

```
0 REM THIS LISTING CREATES (AND
   SHOULD NOT BE CALLED) SOCCER
   64                    :REM*102
5 OPEN 8,8,8,"SOCCER 64,P,W"
                          :REM*28
6 CT=0:PRINT"{SHFT CLR}":REM*56
10 READ A$:IF A$="-1" THEN CLOS
   E8:PRINT:PRINT"ALL DONE!":EN
   D                     :REM*129
12 PRINT"{HOME}READING LINE "+S
   TR$(CT):CT=CT+1       :REM*141
15 IF LEN(A$)<62 THEN 55
                         :REM*254
20 B$=MID$(A$,1,20)+MID$(A$,22,
   20)+MID$(A$,43,20)    :REM*242
25 FOR I=1 TO 30         :REM*181
30 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                         :REM*209
35 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55              :REM*85
40 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55             :REM*136
45 BY=H*16+L:PRINT#8,CHR$(BY);
                          :REM*67
50 NEXT:GOTO 10          :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT
   O 70                  :REM*184
60 IF LEN(A$)<42 THEN B$=LEFT$(
   A$,20)+RIGHT$(A$,(LEN(A$)-21
   )):GOTO 70            :REM*176
65 B$=LEFT$(A$,20)+MID$(A$,22,2
   0)+RIGHT$(A$,LEN(A$)-42)
                         :REM*140
70 FOR I=1 TO LEN(B$)/2:REM*221
75 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                         :REM*140
80 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55              :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55              :REM*84
90 BY=H*16+L:PRINT#8,CHR$(BY);
                         :REM*148
95 NEXT:GOTO 10          :REM*160
100 REM SOCCER ML DATA :REM*155
101 DATA 01080B080A009E323036*3
    1000000A90820D2FF20*9D0EA00
    098994003C8C0         :REM*86
102 DATA C090F8A207A000BD883E*4
    9FF994003C8C8C8CA10*F2A00D8
    CF807C88CF907         :REM*27
103 DATA C88CFA07A9018D1BD08D*2
    7D0A9068D17D08D1DD0*A9078D2
    8D0A9028D29D0         :REM*75
104 DATA A9008D1CD08D20D08D23*D
    0A90A8D22D0A99320D2*FFA9008
    DF8108D15D0A2         :REM*12
105 DATA 03A006182 0F0FFA926A0*1
    0201EABA208A00B1820*F0FFA99
    6A00F201EABA9         :REM*38
106 DATA 02206F0D8CF510A20A98*D
    017A00B1820F0FFA9AA*A00F201
    EABA909206F0D        :REM*136
107 DATA 8CF610A20CA00B1820F0*F
    FA9BBA00F201EABA902*206F0DB
    93B0F8DF710A9        :REM*116
108 DATA 9320D2FFADF510D018A2*0
    0A0101820F0FFA9C9A0*0F201EA
    B18ADF6106931        :REM*212
109 DATA 20D2FFA000A9009928D8*9
    928D99928DAA9A09928*0499280►
```

RUN it right: **C-64; one or two joysticks**

Since 1981

Lyco Computer
Marketing & Consultants

star NX-1000 Series II

•180 cps draft • 45 cps NLQ • four resident fonts • 216x240 dpi resolution and print pitches ranging from 3 to 20 cpi

$159 95

PRINTERS

Panasonic

1180	$169.95*
1191	$216.95
1124	$285.95
1695	$CALL
1624	$439.95

** Quantities Limited*

CITIZEN 120 D

•120 cps draft speed with improved throughput capabilities •Built-in variable-width tractor•compact design w/bottom paper feed minimize space requiremnts.

$129 95

Star

NX-1000 Color	$209.95
NX-1000C	$159.95
NX-1000C Color	$209.95
NX-1000 Series II	$159.95
NX-2410	$419.95

Epson

LX-810	$184.95
LQ-510	$319.95
FX-850	$339.95
FX-1050	$434.95
LQ-850	$509.95
LQ-950	$529.95

Panasonic Office Automation KX-P1180

•9-Pin personal printer • EZ-Set operator panel • adjustable push/pull tractor feed • multiple paper paths • 192 cps draft • 38 cps NLQ

$169 95*

** Quantities Limited*

Printer ribbons, cables, connections and accessories available for all applications. Please Call.

Citizen

120 D	$129.95
180 D	$154.95
HSP-500	$315.95

Brother

1809	$349.95
M1724L	$519.95
1824L	$469.95

Okidata

Okimate 20w/cart	$194.95
172	$195.95
182 Turbo	$229.95
183	$219.95
320	$329.95
321	$459.95

COMMODORE SOFTWARE

Access:	
Echelon	$28.95
Mach 128	$29.95
Mach 5	$22.95
Activision:	
Maniac Mansion	$23.95
Neuromancer	$25.95
Rampage	$22.95
Berkeley Softworks:	
Geofile 64	$29.95
Geos 64 2.0	$35.95
Geos 128 2.0	$39.95
Geopublish	$29.95
Geofile 128	$39.95
Broderbund:	
Print Shop	$28.95
Print Shop Comp	$22.95
GraphicLib1,2,3,ea	$15.95
Carmen San Diego WI	$22.95
Carmen San Diego US	$25.95

★ Call for ★ New Titles

Microprose:	
Gunship	$25.95
Stealth Fighter	$28.95
Red Storm Rising	$28.95
Origin:	
Ultima IV	$38.95
Ultima V	$38.95
Timeworks:	
Swiftcalc 128	$31.95
Data Manager 2-64	$12.95
Data Manager 128	$28.95
Word Writer 128	$31.95

ACCESSORIES

Joysticks:	
Boss	$12.95
Bathandle	$16.95
I Controller	$12.95
3-Way	$22.95
Diskettes:	
5¼ Disk Notcher	$5.95
Xidex 5¼ DSDD	$4.95
Xidex 3½ DSDD	$9.95
Surge Protectors:	
QVS PP-102	$15.95
QVS PP-112	$15.95
QVS PP-104	$23.95
Printer Interfaces:	
Xetec Jr.	$35.95
Xetec Supergraphics	$55.95
Xetec Gold	$74.95
MW 350	$49.95
Printer Paper:	
1000 sheet laser	$16.95
Banner Paper 45' Roll	$10.95
Drive Maintenance:	
5¼ Drive Cleaner	$4.95
3½ Drive Cleaner	$4.95

COMMODORE UPGRADES

MAGNAVOX CM8762

- 13'' diagonal RGB/Composite Color Display
- Green text switch
- Built-in tilt stand
- Interface cables included

$234 95

GoldStar 2105 A

- 12'' amber display
- 640h x 200v
- IBM and Commodore compatible

$79 95

Excel FSD-2 + Disk Drive

100% Commodore 64C drive compatible, the Excelerator Plus Disk Drive is quieter, smarter, faster, and more reliable than the 1541 and 1541C. *1-year warranty*

$139 95

MONITORS

Magnavox:	
BM7652 Mon. Comp	$84.95
BM7622 Mon. Comp	$84.95
CM8702 Color Comp	$179.95
CM8762 RGB	$234.95
8CM-515 RGB	$239.95
GoldStar:	
2105 A Composite	$79.95
1410 CGA 14''	$209.95
1420 EGA 14''	$319.95
1430 VGA 14''	$349.95

MODEMS

Cardinal:	
MB2400EX EXT 2400 Baud	$99.95
MB1200EX EXT 1200 Baud	$69.95
Everex:	
Evercom 12 (INT)	$54.95
Evercom 24 (INT)	$119.95
Evercom 24 + MNP	$149.95
Evercom 24E + MNP	$199.95
Avatex:	
1200e	$69.95
1200hc	$99.95
2400	$129.95

HARDWARE

64C Computer	$CALL
C 128 D Computer Drive	$CALL
1541 II Disk Drive	$CALL
Colt PC	$CALL
1670 Modem	$CALL

Cardinal MB2400EX External Modem

- Low error data transmission and reception over standard dial-up telephone lines
- Hayes compatible with the universally-accepted AT command set
- Automatic Data Standard and Speed Adjust features

$99 95

64 Power Supply

The MW 701-A power supply made by Micro R&D features double fused systems, schematics, and a one-year warranty. Stay with the best, stay with Micro R&D.

$34 95

''Our friendly sales staff can help with any questions you have''

Why shop at Lyco Computer? Lyco Computer offers quality name brand computer products at prices 30% to 50% below retail. If you do not see the product you want advertised, call Lyco Marketing toll free. ***How do I know I will get the product I need?*** Our marketing staff receives continous formal training by our manufacturers. As thousands of people every week capitalize on our savings and services, we hope you too, will make Lyco Computer your first choice. ***What about warranty or service?*** Our Customer Service Department is available at (717) 494-1670 to assist you. We back all of our manufacturer's stated warranty terms. Before returning any item that appears to be defective, we ask that you call our Customer Service Department. ***Will you rush an item to me?*** We offer next day air, two day air, standard UPS, and postal international shipping services. Temporary shortages are normally filled within 10 days. ***How do I order?*** We have always accepted C.O.D. orders through UPS. Prepaid cash orders over $50 are shipped freight-free. For orders under $50, please add $3 for freight. Personal and company checks require a 4 week waiting period. Visa and Master Card orders are accepted. Please add 4% for credit cards. Purchase orders are accepted from Educational Institutions. We charge sales tax on deliveries in Pennsylvania. For APO, FPO, and international orders, add $5 plus 3% for priority mail. Prices in this ad reflect cash prices. Advertised prices and availability are subject to change. Simply send your order to Lyco Computer, P.O. Box 5088, Jersey Shore, PA, 17740. Or, call 1-800-233-8760 or (717) 494-1030. Not responsible for typographical errors.

Sales: 1-800-233-8760 or
717-494-1030
Fax:717-494-1441
Hours: Mon.-Fri. 9a.m.-9p.m.
Sat. 10a.m.-6p.m.
Customer Service:
717-494-1670
Hours: Mon.-Fri. 9a.m.-5p.m.

MasterCard VISA

ATTENTION EDUCATIONAL INSTITUTIONS:
If you are not currently using our educational service program, please call our representatives for details.

1-800-233-8760

Price Guarantee

Since 1981, we have led the industry by continuing to offer the lowest national prices while providing quality service. Many companies have come and gone trying to imitate our quality and service. If by some oversight, we do not have the lowest prices advertised on the products you desire, then we would appreciate the opportunity to rectify this oversight.

FOOSBALL 64

```
         5992806C8D0E7         :REM*17
110 DATA A021A901992BD899FBDA*8
         810F7A215A0061820F0*FFA926A
         01201EABA900         :REM*184
111 DATA 8DF9108DFA10204A0DA9*0
         58DF810A012A90099FB*108810F
         A20410EA9B48D         :REM*25
112 DATA 0211A9828D0111A90A8D*0
         6118D0711A5A229018D*0A11A5A
         24A29018D0B11        :REM*104
113 DATA 201A0EA9078D15D020E1*F
         FD0034C6908AD8D0229*02F011A
         D8D02D0FBAD8D          :REM*2
114 DATA 022902F0F9AD8D02D0FB*E
         603D014AD0711C90490*03CE071
         1AD0611C90490        :REM*232
115 DATA 03CE0611A503293FD01A*2
         0E70AAD00DC8DFB10AD*01DC8DF
         C10ADF510D003         :REM*16
116 DATA 206D0A20110B20360C20*7
         B0C201A0EA06488D0FD*AC0211A
         E0311D007C03A        :REM*221
117 DATA B08E4CE809C03090872 0*0
         A0EA9F08D06D4A9118D*04D4A90
         18504A5048505          :REM*6
118 DATA A5050A0A8D01D4EEF810*A
         90220C20DC605D0EDE6*04A504C
         90C90E1200A0E         :REM*48
119 DATA A9058DF810AE0311FEF9*1
         0204A0DA90620C20DAE*0311BDF
         910A82907D0E7        :REM*106
120 DATA C048B0034C3909A218A0*0
         F1820F0FFA20EA010A5*044A900
         4A21AA0108A20        :REM*152
121 DATA 1EABA91E20C20DE604AD*0
         0DC2910D0D920E60D4C*6908EE0
         411AD0411C909         :REM*49
122 DATA B006A91F8DFC1060ADF6*1
         08D041138AD0111E93E*4A4A4A8
         502A950853BA9         :REM*36
123 DATA 04853CA900850 4A9FF8D*0
         511AC0011C8B13BC94D*F028A50
         4C502D007A900        :REM*152
124 DATA A00F4CC60A9007E502A0*1
         E4CC60A38A502E504A0*1DCD051
         1B0068D05118C        :REM*170
125 DATA FC1018A53B6928853BA5*3
         C6900853CE604A504C9*1190B96
         0A91AAC0311D0         :REM*61
126 DATA 0FAC0211C0DCB008A910*C
         08CB002A906ACFD10D0*038DFF1
         0ACFE10D00618         :REM*74
127 DATA 69058D00116 0A9018506*A
         606BDFF1085FEBDFD10*D007BDF
         B10291 0D00320       :REM*121
128 DATA 480BA606BDFB102903C9*0
         2D00620A20B4C430BC9*01D0032
         0E50BC6061 0CE       :REM*239
129 DATA 6018A95065FE853BA904*6
         900853CA606BDFD100A*187DFD1
         0E000F0031869         :REM*14
130 DATA 188502A9118504A001B1*3
         BC94DF00FA602A000BD*660F913
         BE8C8C00390F5         :REM*81
131 DATA 18A53B6928853BA53C69*0
         0853CC604D0D8A60618*BDFD106
         90129079DFD10         :REM*94
132 DATA 6018A950853B69288539*A
         904853C6900853AA4FE*C8B13BC
         94DF00160A910        :REM*184
133 DATA 8504A203A4FEB139913B*C
         8CAD0F818A539853B69*288539A
         53A853C690085        :REM*153
134 DATA 3AC604D0DF4C250C38A9*D
         0853BE9288539A90685*3CE9008
         53AA4FEC8B13B        :REM*194
135 DATA C94DF00160A9108504A2*0
         3A4FEB139913BC8CAD0*F838A53
         9853BE9288539        :REM*174
136 DATA A53A853CE900853AC604*D
         0DFA4FEA920913BC8A9*4D913BC
         8A920913B6018        :REM*196
137 DATA AD09116D07118D091190*2
         2AC0B1118AD0111793D*0FA8AE0
         211AD0311200E        :REM*174
138 DATA 0DC9A0F00B20C80CB005*A
         5FB8D01116 0AD0B1149*0129018
         D0B11AD07114A        :REM*255
139 DATA 09018D07114CCD0D18AD*0
         8116D06118D081190 2A*AC0A111
         8AD0211793D0F         :REM*11
140 DATA AAAD0311793F0FAC0111*2
         00E0DC9A0F0120C80C*B00AA5F
         C8D0211A5FD8D        :REM*164
141 DATA 031160AD0A1149012901*8
         D0A11AD06114A09018D*06114CC
         D0DC9409017A0         :REM*23
142 DATA 00C94A9013C94E900DC8*C
         952900AC9559004C95B*9002186
         0ADF710CC0A11         :REM*44
143 DATA D005CD0611F0F18C0A11*8
         D0611A5A22DF7100901*8D0711A
         5A229018D0B11        :REM*109
144 DATA 20CA0D386084FB86FC85*F
         DA90085A7A90485A838*98E92E4
         A4A4AA818A5A7         :REM*81
145 DATA 692885A7A5A8690085A8*8
         8D0F0388AE9148502A5*FDE9004
         A66024602460 2       :REM*220
146 DATA A402B1A760AEFA10A980*A
         00320 5B0DAEF910A9C0*A003853
         B843CA000BD80        :REM*130
147 DATA 39913BE8C8C8C8C01890*F
         3608D0C11A0008C0D11*C88C860
         2A92020D2FFA9        :REM*162
148 DATA 9D20D2FFA90520C20D18*A
         D0D1169312 0D2FFA99D*20D2FFA
         90520C20DAD00        :REM*226
149 DATA DC291FC90FF015290 3A8*1
         8AD0D117941 0FCD0C11*B0C68D0
         D114C7B0D20E6         :REM*99
150 DATA 0DAC0D11601865A2C5A2*D
         0FC60A92A2CA9164820*0A0E688
         D01D4A9028D05        :REM*223
151 DATA D4A2108E04D4E88E04D4*6
         0200A0EA90E8D01D4A9*F08D06D
         4A9118D04D4A9        :REM*181
152 DATA 0F20C20DA9108D04D4AD*0
         0DC2910F0F960A017A9*0099 00D
         48810FAA90F8D        :REM*134
153 DATA 18D460AD01118D01D0AD*0
         2118D00D0AD0311 0904*8D10D0A
         97E8D03D08D05         :REM*27
154 DATA D0A91C8D02D0A9448D04*D
         060A202A0001820F0FF*A911850
         4A9D2A00F201E        :REM*236
155 DATA ABC604D0F5A000A205A9*2
         09944059963051 89869*28A8CAD
         0F0A90A8504A4        :REM*161
156 DATA 04BE450FB9500FA81820*F
         0FFA904A01201EABA4*04BE450
         FB95B0FA81820        :REM*104
157 DATA F0FFA909A01201EABC6*0
         410D460AD0EDC29FE8D*0EDCA50
         129FB8501A9D0        :REM*144
158 DATA 853AA938853CA0008439*8
         43BA208B139913BC8D0*F9E63AE
         63CCAD0F2A501        :REM*197
159 DATA 09048501AD0EDC09018D*0
         EDCA06FB98510990 03A*99703A8
         810F4AD16D009        :REM*221
160 DATA 108D16D0AD18D029F009*0
         E8D18D078A9138D1403*A90F8D1
         503A9008D12D0        :REM*137
161 DATA A91B8D11D0A9818D1AD0*5
         860AD19D08D19D03007*AD0DDC5
         84C31EAA03EA2        :REM*248
162 DATA 00AD12D0C9CEB005A0CE*A
         EF8108C12D08E21D04C*BCFE1F3
         F01FF00FF0001        :REM*195
163 DATA FF00070A0D04070A0D10*0
         60A0E0606061010101 0*101A1A1
         A1F1F1F151515        :REM*117
164 DATA 15150B0B0B4748492040*2
         041424344454641424 3*2040204
         748494A4B4C4F         :REM*73
165 DATA 5051204E205556575859*5
         A5556572 04E204F5051*5253549
         C484F5720 4D41        :REM*40
166 DATA 4E5920504C4159455253*3
         F20009E4C4556454C20*4F46205
         04C41593F2000         :REM*43
167 DATA 1C42414C4C2053504545*4
         43F200054C4556454C*2020001
         D1D1D1205202 0        :REM*19
168 DATA 92209B20CD2020209620*C
         D202209B20CD202020*9620CD2
         020209B20CD20        :REM*253
169 DATA 20209620CD2020120520*2
         00D009BCACBCC0096D2*D3D4009
         E47414D452020        :REM*165
170 DATA 4F564552001C50524553*5
         320464952450 09FBC12*2092BE1
         2C320922012 20       :REM*164
171 DATA 92A212A192A112B5C092*A
         1201220C0B5BBB4A2B4*A2B5C09
         2A11220C092A1        :REM*191
172 DATA 0D20202020202012 20*9
         22012BC2092BB1220BE*A1BCB59
         2A2BB20A21220         :REM*65
173 DATA B5BEB492A212B492A212*B
         592A2BB122092DF12DF*0D003CF
         FEBEBEBEBFF3C         :REM*81
174 DATA 03030A0A0A0303D4D4*7
         E7E7E7ED4D40020606 0*6060200
         0030397979797         :REM*19
175 DATA 0303E5E5FEFEFEFEE5E5*0
         0029696969602000008*0909090
         9080017 17BDBD       :REM*153
176 DATA BDBD1717C0C0A0A0A0A0*C
         0C00080969696968000*5B5BBFB
         FBFBF5B5BC0C0          :REM*5
177 DATA D6D6D6D6C0C028282828*2
         828282800000000000 0*0000000
         0000000000000        :REM*188
178 DATA 000000000000000000
                              :REM*129
179 DATA -1                    :REM*33
```

■

Since 1979

SAVE 25-70%

CALL FOR YOUR FREE CATALOG TODAY!

1-800-BUY-WISE EXT. 15

ASK ABOUT EXTRA SAVINGS WITH OUR COMPUTER DIRECT CREDIT CARD!

1200 BAUD EXTERNAL MODEM

Features Include:
- RS232/DB25 Connector
- DB9 Pin Adapter
- Telephone Cable
- 1200/300 bps Asynchronous
- Full or Half Duplex
- Auto Dial/Auto Answer
- Standard 9 Volt Battery

AC Adapter Sold Separately for $4.95

OUR LOW PRICE

$69.95

List $199.95

ACCESSORIES

C64C Computer with One FREE Action Game	$129.95
1541-II Disk Drive with One FREE Action Game	$179.95
Epyx 200XJ Joystick	$10.95
Wico Ergostick	$17.95
M-3 Analog Mouse	$43.95
Hearsay 1000	$65.95
Dust Covers	$10.95
5.25" Disk Cleaner	$7.95

NO ONE CAN SELL THIS PRINTER FOR LESS!

180 CPS PRINTER

WITH NLQ

LIFETIME WARRANTY ON PRINTHEAD

No Jam Tractor Feed

- 2 Year Immediate Replacement
- Dot Addressable Graphics
- Italics, Elite, Pica, Condensed
- Centronics Parallel Port
- 8K Printer Buffer
- NLQ Selectable from Front Panel
- Low Cost Adapters Available
- Pressure Sensitive Controls
- Includes One FREE Ribbon

OUR LOW PRICE

$149.95

List $299.00

SOFTWARE

Shinobi	*List $34.95* by Sega	$23.95
After Burner	*List $34.95* by Mindscape	$23.95
John Madden Football	*List $43.95* by Electronic Arts	$30.95
Wordwriter 4	*List $39.95* by Timeworks	$27.95
Omni-Play Basketball	*List $34.95* by Broderbund	$24.95
MTV® Remote Control	*List $12.95* by Hi Tech Expressions	$8.95
Monopoly	*List $39.95* by Electronic Arts	$23.95

SAVE $200 ON THE NEW

COMMODORE 64C TEST PILOT PACKAGE

Package Includes:
- C64C Computer
- 1541-II Disk Drive
- ACE Joystick *by Kraft*
- Five Software Packages:
  - Advanced Tactical Fighter
  - Infiltrator II
  - Harrier
  - Crazy Cars
  - Tomahawk

Infiltrator II

ALL THIS FOR ONLY

$299.95

List $499.95

SHAREDATA SOFTWARE

Jeopardy	*List $12.95*	Now $6.95
Jeopardy 2	*List $12.95*	$6.95
Sports Jeopardy	*List $17.95*	Now $6.95
Junior Jeopardy	*List $14.95*	Now $7.95
Wheel of Fortune	*List $12.95*	Now $6.95
Wheel of Fortune 2	*List $14.95*	Now $7.95
Wheel of Fortune 3	*List $14.95*	Now $7.95

MAGNAVOX 13" COLOR COMPOSITE

Model No. CM8702

OUR LOW PRICE

ONE YEAR LIMITED WARRANTY

$199.95

List $299.95

5.25" DOUBLE SIDED/ DOUBLE DENSITY DISKS

AS LOW AS

19¢ ea

MADE IN THE U.S.A.

100% Certified • Lifetime Guarantee

5.25" DSHD DISKS

AS LOW AS

45¢ ea

3.5" DSDD DISKS

LOTS OF 10

59¢ ea

MAGNAVOX 13" COLOR RGB

Model No. CM8762

OUR LOW PRICE

ONE YEAR LIMITED WARRANTY

$234.95

List $399.95

Prices do not include shipping charges. Call to get your lowest delivered cost. We insure all shipments at no extra cost to you! All packages are normally shipped UPS Ground. 2nd day and overnight delivery are available at extra cost. We ship to all points in the US, Canada, Puerto Rico, Alaska, Hawaii, Virgin Islands and APO-FPO. Monitors only shipped in Continental US. Illinois residents add 6.5% sales tax. Prices and availability subject to change without notice. Not responsible for typographical errors or omissions. *Computer Direct will match any current (within 30 days) nationally advertised price on exact same items. Shipping and sales tax not included. Verification required.

FAX Ordering 708-382-7545 Outside Service Area, Please Call 708-382-5058

COMPUTER DIRECT, INC.

22292 N. Pepper Road
Barrington, IL 60010

EXPIRES 2/28/90

"We Love Our Customers"

Circle 15 on Reader Service card.

Duo

Outwit your Commodore in this tricky and challenging card game.

◇

By ROBERT COOK

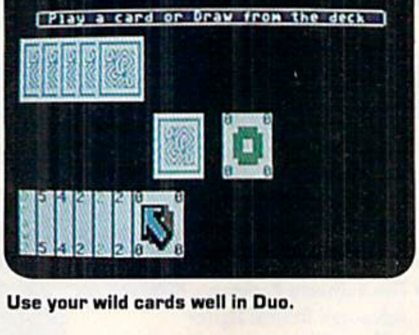
Duo, the C-64 version of the card game Uno, is designed for two players—you and the computer. The object is to be first to score 100 points or more. You score points by winning a hand, which happens when you're first to play all your cards or when your opponent's hand grows to 18 cards or more. You can play from the keyboard or with a joystick plugged into port 2.

The Duo deck contains 100 cards—eight each of 0–9, Skip a Turn and Draw 2 Cards, plus four Wild cards. All but the Wild cards belong to either the red, blue, green or yellow suit. You determine a Wild card's suit when it's played.

The computer deals the first hand; then the winner of each subsequent hand deals. Each player gets six cards per hand, and an additional card is placed face-up beside the deck to start the discard pile.

At your turn, you may either play a card to the discard pile or draw a card from the deck. You may discard anything that matches the top card on the pile in either color, number or action (Skip or Draw 2), and a Wild card may be played at any time.

To discard, first choose a card by moving the arrow onto it using either the keyboard or the joystick. With the keyboard, press the horizontal cursor key to move the arrow right and the vertical cursor key to move it left. With the joystick, press the lever right or left. Press the return key or the joystick firebutton to play the card. If you try to play an illegal card, a buzzer will alert you to your mistake.



Score Games
Comp: 0 0
You: 0 0

Play a card or Draw from the deck

Use your wild cards well in Duo.

If you can't or don't want to discard, press the ↑ key or push the joystick up to move the arrow onto the deck; then press return or the firebutton to draw a card. You can move the arrow off the deck before drawing by pressing shift/↑ or pushing the joystick down.

When you play a number or Wild card or draw a card, your turn ends, but if you play a Skip or Draw 2 card, your opponent forfeits a turn, and you can go again right away. Draw 2 also makes your opponent draw two extra cards from the deck.

As I mentioned, a Wild card can be played at any time. After you play it, cycle through the colors and press return or the firebutton to assign it the color you want it to have.

If you play out your cards, your score is the total value of your opponent's hand. If your opponent's hand gets too big, your score is the difference between the values of the hands, assuming your opponent's is larger. Card values are: 0–9, face value; action cards, 20 points; wild cards, 50 points.

No matter how play ends, the winner receives an additional 10 points just for winning, while the loser receives no points at all. After the score display is updated, press return or the firebutton to begin the next hand. When all the cards in the deck are drawn, a hand ends with no winner. The first player to score 100 points wins. To play another game, press Y at the prompt. Otherwise press N to return to Basic. R

Robert Cook is a draftsman and printed circuit board designer who has been programming for about four years.

Running Instructions: **Type in Listing 1, using *RUN*'s Checksum, save it to disk and run it.**

Listing 1. Duo program. (Available on ReRun disk. See card at page 36.)

```
10 REM DUO 64 - ROBERT B. COOK
                        :REM*131
20 POKE53280,11:POKE53281,1:POK
   E53265,11            :REM*164
30 GOSUB1620:GOSUB2040:POKE5326
   5,27                 :REM*109
40 GOSUB1010             :REM*88
50 POKE646,4-(PU=2)*4:PRINTEL$:
   ONPUGOSUB90,510:POKESP,0
                         :REM*68
60 IFYC=0ORMC=0ORYC>17ORMC>17TH
   ENGOSUB1210:GOTO40    :REM*23
70 IFDP=100THENGOSUB910:GOTO40
                        :REM*157
80 PU=3-PU:GOTO50       :REM*111
90 POKESX,30:POKESY,218:POKESP,
   1:MV=1:SK=0:POKESB,0:REM*156
100 PRINTLEFT$(CR$,7)"{3 CRSR R
    Ts}{CTRL 9}{CTRL 5}{SHFT P}
    LAY A CARD OR {SHFT D}RAW F
    ROM THE DECK{CTRL 0}":GOSUB
    950                  :REM*73
110 GETG$:JS=PEEK(56320)AND31:I
    FG$=""ANDJS=31THEN110
                        :REM*144
120 IFG$="{UP ARROW}"ORJS=30THE
    NPOKESX,150:POKESY,170:POKE
    SB,0:GOTO110         :REM*13
130 IFG$="{CRSR RT}"ORJS=23THEN
    MV=MV+1:IFMV>YCTHENMV=1
```

RUN it right: **C-64; joystick optional**

```
                               :REM*71
140 IFG$="{CRSR DN}"ORJS=27THEN
    MV=MV-1:IFMV<1THENMV=YC
                               :REM*47
150 FORL=1TO50:NEXT:T=14+MV*16:
    T1=0:IFT>255THENT=T-255:T1=
    1                         :REM*130
160 IFG$<>CHR$(13)ANDJS<>15THEN
    POKESX,T:POKESY,218:POKESB,
    T1:GOTO110                :REM*184
170 PRINTEL$                   :REM*66
180 IFPEEK(SY)=170THENYC=YC+1:Y
    C(YC)=DK(DP):DP=DP+1:GOSUB3
    20:RETURN                 :REM*229
190 IFCV(YC(MV))<>12ANDCV(YC(MV
    ))<>CV(UC)ANDCC$(YC(MV))<>C
    C$(UC)THEN290             :REM*253
200 PRINTLEFT$(CR$,15)TAB(21)"{
    CTRL 2}"+CD$(YC(MV))
                              :REM*251
210 PRINTLEFT$(CR$,15)TAB(21)CC
    $(YC(MV))+CD$(YC(MV))
                              :REM*238
220 UC=YC(MV):YC=YC-1:IFYCTHENG
    OSUB310:GOTO240             :REM*6
230 PRINTLEFT$(CR$,25)EC$;
                              :REM*113
240 IFCV(UC)=12ANDYCTHENGOSUB40
    0                         :REM*188
250 IFCV(UC)=11THENGOSUB460
                               :REM*76
260 IFCV(UC)=10ANDYCTHENGOSUB48
    0                          :REM*51
270 IFSK=1ANDYC>0ANDMC<18ANDDP<
    100THEN90                 :REM*168
280 RETURN                    :REM*167
290 PRINTLEFT$(CR$,7),"{CTRL 9}
    {CTRL 5}{SHFT C}HOOSE ANOTH
    ER CARD{CTRL 0}":GOSUB990
                              :REM*230
300 FORL=0TO999:NEXT:GOTO90
                              :REM*171
310 FORL=MVTOYC+1:YC(L)=YC(L+1)
    :NEXT:GOTO350              :REM*67
320 FORL=1TOYC-1:FORK=L+1TOYC
                               :REM*66
330 IFCV(YC(L))<CV(YC(K))THENT=
    YC(L):YC(L)=YC(K):YC(K)=T
                              :REM*150
340 NEXT:NEXT                 :REM*211
350 T=0:FORL=1TOYC            :REM*123
360 IFL<19THENPRINTLEFT$(CR$,21
    )TAB((L-1)*2)CL$(T)+CC$(YC(
    L))+CD$(YC(L));           :REM*109
370 T=1:NEXT:IFYC<18THENPRINTEE
    $;                        :REM*206
380 IFYC=19THENPRINTLEFT$(CR$,1
    5)TAB(34)CC$(YC(19))+CD$(YC
    (19));                    :REM*246
390 RETURN                     :REM*22
400 POKESP,0:T=0:PRINTLEFT$(CR$
    ,7)TAB(13)"{CTRL 9}{CTRL 5}
    {SHFT C}HOOSE A COLOR{CTRL
    0}":GOSUB950               :REM*40
410 GETG$:JS=PEEK(56320)AND31:I
    FG$=""ANDJS=31THEN410
                               :REM*38
420 IF(G$=CHR$(13)ORJS=15)ANDT>
    0THENPRINT"{CTRL 5}"EL$:GOT
    O450                       :REM*50
430 T=T+1+(T=4)*4:T$=MID$("{COM
    D 3}{CTRL 6}{COMD 7}{CTRL 8
    }",T,1):WC$=T$:PRINTLEFT$(C
    R$,15)TAB(21)T$CD$(UC)
                              :REM*125
440 CC$(UC)=T$:GOSUB950:GOTO410
                              :REM*119
450 WAIT56320,16:WAIT197,64:RET
    URN                       :REM*152
460 PRINTLEFT$(CR$,7)TAB(12)"{C
    TRL 9}{CTRL 5}{SHFT I} TAKE
     TWO CARDS{CTRL 0}":GOSUB95
    0:FORS=0TO999:NEXT :REM*136
470 FORJ=1TO2:IFDP<100THENMC=MC
    +1:MC(MC)=DK(DP):DP=DP+1:GO
    SUB760:NEXT               :REM*192
480 IFYC=0ORMC>17ORDP>99THEN500
                              :REM*201
490 PRINTLEFT$(CR$,7),"{CTRL 9}
    {CTRL 5}{SHFT Y}OU GET ANOT
    HER TURN{CTRL 0}":GOSUB950:
    FORS=0TO999:NEXT      :REM*149
500 SK=-(DP<100):RETURN :REM*54
510 PRINTLEFT$(CR$,7)TAB(14)"{C
    TRL 9}{COMD 1}{SHFT I}T'S M
    Y TURN{CTRL 0}":GOSUB970:FO
    RS=0TO999:NEXT             :REM*92
520 SK=0:MV=1:T=1              :REM*44
530 FORL=1TOMC:IFCV(MC(L))<10TH
    EN580                     :REM*125
540 IFCV(MC(L))<>CV(UC)ANDCC$(M
    C(L))<>CC$(UC)ORCV(MC(L))=1
    2THEN570                  :REM*102
550 FORK=L+1TOMC:IFCC$(MC(K))=C
    C$(MC(L))ORCV(MC(K))=CV(MC(
    L))THENMV=L:GOTO640:REM*246
560 NEXT                      :REM*176
570 T=L+1:NEXT:IFYC<3THENT=1
                              :REM*148
580 FORL=TTOMC:IFCV(MC(L))=CV(U
    C)ANDCV(MC(L))<>12ANDMC(L)T
    HENMV=L:GOTO640            :REM*67
590 IFCC$(MC(L))=CC$(UC)THENMV=
    L:GOTO640                 :REM*148
600 NEXT:IFT<>1THENT=1:GOTO580
                               :REM*98
610 IFCV(MC(1))=12THENMV=1:GOTO
    640                       :REM*136
620 PRINTLEFT$(CR$,7)TAB(11)"{C
    TRL 9}{COMD 1} {SHFT I}'LL
    DRAW A CARD {CTRL 0}":GOSUB
    970:FORS=0TO999:NEXT
                              :REM*176
630 MC=MC+1:MC(MC)=DK(DP):DP=DP
    +1:GOSUB760:RETURN   :REM*50
640 PRINTLEFT$(CR$,7)TAB(11)"{C
    TRL 9}{COMD 1} {SHFT I}'LL
    PLAY A CARD {CTRL 0}":GOSUB
    970:FORS=0TO999:NEXT
                              :REM*124
650 IFYC=1ANDCV(MC(1))=12THENMV
    =1                         :REM*40
660 PRINTLEFT$(CR$,15)TAB(21)"{
    CTRL 2}"+CD$(MC(MV));
                               :REM*69
670 PRINTLEFT$(CR$,15)TAB(21)CC
    $(MC(MV))+CD$(MC(MV));
                               :REM*44
680 UC=MC(MV):MC=MC-1:IFMCTHENG
    OSUB750:GOTO700           :REM*166
690 PRINTLEFT$(CR$,13)EC$
                              :REM*247
700 IFCV(UC)=12ANDMCTHENGOSUB81
    0                          :REM*41
710 IFCV(UC)=11THENGOSUB860
                               :REM*66
720 IFCV(UC)=10ANDYCTHENGOSUB88
    0                          :REM*37
730 IFSK=1ANDMC>0ANDYC<18ANDDP<
    100THEN520                :REM*153
740 RETURN                    :REM*113
750 FORL=MVTOMC+1:MC(L)=MC(L+1)
    :NEXT:GOTO790              :REM*92
760 FORL=1TOMC-1:FORK=L+1TOMC
                              :REM*234
770 IFCV(MC(L))<CV(MC(K))THENT=
    MC(L):MC(L)=MC(K):MC(K)=T
                               :REM*59
780 NEXT:NEXT                 :REM*141
790 IFMC<19THENPRINTLEFT$(CR$,9
    )TAB((MC-1)*2)BK$;:IFMC<18T
    HENPRINTEE$;               :REM*28
800 RETURN                    :REM*173
810 T1=0:T$="":FORL=1TO4:T=0:FO
    RK=1TOMC                  :REM*160
820 IFCC$(MC(K))=MID$("{COMD 3}
    {CTRL 6}{COMD 7}{CTRL 8}",L
    ,1)THENT=T+1               :REM*76
830 NEXT:IFT>T1THENT1=T:T$=MID$
    ("{COMD 3}{CTRL 6}{COMD 7}{
    CTRL 8}",L,1)               :REM*2
840 NEXT:IFT$=""THENT$=MID$("{C
    OMD 3}{CTRL 6}{COMD 7}{CTRL
     8}",INT(RND(1)*4+1),1)
                              :REM*192
850 PRINTLEFT$(CR$,15)TAB(21)T$
    +CD$(UC):CC$(UC)=T$:RETURN
                              :REM*211
860 PRINTLEFT$(CR$,7)TAB(11)"{C
    TRL 9}{COMD 1}{SHFT Y}OU TA
    KE TWO CARDS{CTRL 0}":GOSUB
    970:FORS=0TO999:NEXT
                              :REM*152►
```

```
870 FORJ=1TO2:IFDP<100THENYC=YC
    +1:YC(YC)=DK(DP):DP=DP+1:GO
    SUB320:NEXT              :REM*56
880 IFMC=0ORYC>17ORDP>99THEN900
                            :REM*231
890 PRINTLEFT$(CR$,7)TAB(11)"{C
    TRL 9}{COMD 1}{SHFT I} GET
    ANOTHER TURN{CTRL 0}":GOSUB
    970:FORS=0TO999:NEXT
                            :REM*155
900 SK=-(DP<100):RETURN:REM*135
910 PRINTLEFT$(CR$,19)TAB(14)EC
    $:PRINTLEFT$(CR$,7)"{CTRL 4
    }"EL$                   :REM*142
920 PRINTLEFT$(CR$,7)TAB(7)"{CT
    RL 9}{SHFT N}O MORE CARDS,
    HAND DUMPED"             :REM*46
930 FORL=1TO6:GOSUB970:GOSUB950
    :NEXT                    :REM*98
940 GOSUB1440:RETURN         :REM*57
950 POKESR,240:POKEWV,17:POKEHF
    ,50:POKELF,35:POKEAT,0
                             :REM*50
960 FORS=1TO99:NEXT:POKEWV,16:P
    OKESR,0:RETURN            :REM*2
970 POKEVL,15:POKEAT,0:POKESR,2
    25:POKEWV,17:POKEHF,33:POKE
    LF,33                   :REM*104
980 FORS=1TO99:NEXT:POKEWV,16:R
    ETURN                    :REM*60
990 POKEHF,5:POKEAT,0:POKESR,24
    0:POKEWV,33              :REM*91
1000 FORS=1TO500:NEXT:POKEWV,32
    :RETURN                 :REM*238
1010 T=RND(-TI):SYS900       :REM*74
1020 PRINTLEFT$(CR$,7)"{CTRL 4}
    "EL$:PRINTLEFT$(CR$,7)TAB(
    11)"{CTRL 9}{SHFT S}HUFFLI
    NG THE DECK{CTRL 0}"
                            :REM*227
1030 GOSUB950:GOSUB970      :REM*196
1040 FORL=1TO100:T=INT(RND(1)*1
    00+1):T1=DK(L):DK(L)=DK(T)
    :DK(T)=T1:NEXT          :REM*145
1050 FORL=1TO19:YC(L)=0:MC(L)=0
    :NEXT                   :REM*140
1060 T=0:FORL=1TO12STEP2:T=T+1:
    YC(T)=DK(L):MC(T)=DK(L+1):
    NEXT                    :REM*166
1070 FORL=1TO5:FORK=L+1TO6
                            :REM*150
1080 IFCV(YC(L))<CV(YC(K))THENT
    =YC(L):YC(L)=YC(K):YC(K)=T
                            :REM*217
1090 IFCV(MC(L))<CV(MC(K))THENT
    =MC(L):MC(L)=MC(K):MC(K)=T
                            :REM*250
1100 NEXT:NEXT:PRINTLEFT$(CR$,7
    )"{CTRL 4}"EL$          :REM*125
1110 T=0:FORL=1TO6            :REM*3
1120 PRINTLEFT$(CR$,21)TAB((L-1
    )*2)CL$(T)+CC$(YC(L))+CD$(
    YC(L));                 :REM*116
1130 PRINTLEFT$(CR$,9)TAB((L-1)
    *2)BK$                   :REM*77
1140 T=1:NEXT{16 SPACEs}:REM*59
1150 IFCV(DK(13))<10THEN1170
                             :REM*47
1160 T1=INT(RND(1)*85+16):T=DK(
    13):DK(13)=DK(T1):DK(T1)=T
    :GOTO1150               :REM*105
1170 PRINTLEFT$(CR$,15)TAB(14)B
    K$                       :REM*47
1180 PRINTLEFT$(CR$,15)TAB(21)C
    C$(DK(13))+CD$(DK(13))
                              :REM*3
1190 MC=6:YC=6:UC=DK(13):DP=14
                             :REM*78
1200 RETURN                  :REM*59
1210 IFMC=0THEN1250         :REM*250
1220 T=0:FORL=1TOMC          :REM*80
1230 IFL<19THENPRINTLEFT$(CR$,9
    )TAB((L-1)*2)CL$(T)+CC$(MC
    (L))+CD$(MC(L))         :REM*102
1240 T=1:NEXT               :REM*159
1250 POKE646,4-(MC=0ORYC>17)*4:
    PRINTLEFT$(CR$,7)TAB(2)EL$
                             :REM*34
1260 T=0:FORL=0TOYC:T1=CV(YC(L)
    )                       :REM*190
1270 IFT1<10THENT=T+T1       :REM*57
1280 IFT1=10ORT1=11THENT=T+20
                              :REM*9
1290 IFT1=12THENT=T+50      :REM*134
1300 NEXT:YT=T              :REM*218
1310 T=0:FORL=0TOMC:T1=CV(MC(L)
    )                       :REM*227
1320 IFT1<10THENT=T+T1      :REM*111
1330 IFT1=10ORT1=11THENT=T+20
                             :REM*55
1340 IFT1=12THENT=T+50      :REM*200
1350 NEXT:MT=T              :REM*232
1360 IFYC>17THENYT=YT-MT:IFMT<0
    THENMT=0                :REM*151
1370 IFMC>17THENMT=MT-YT:IFYT<0
    THENYT=0                 :REM*50
1380 IFYC>0ANDMC<18THEN1420
                             :REM*46
1390 PRINTLEFT$(CR$,7)TAB(10)"{
    CTRL 9}{SHFT Y}OU SCORE"MT
    +10"POINTS":GOSUB950:GOSUB
    950                     :REM*101
1400 YS=YS+MT+10:PU=2:IFYS>99TH
    ENYG=YG+1               :REM*167
1410 IFMC>0ANDYC<18THEN1440
                            :REM*166
1420 PRINTLEFT$(CR$,7)TAB(11)"{
    CTRL 9}{SHFT I} SCORE"YT+1
    0"POINTS":GOSUB970:GOSUB97
    0                        :REM*15
1430 MS=MS+YT+10:PU=1:IFMS>99TH
    ENMG=MG+1               :REM*240
1440 FORL=0TO2999:NEXT:FORL=97T
    O100:CC$(L)="{CTRL 1}":NEX
    T:SK=0:GOSUB1590        :REM*193
1450 POKE198,0:IFMS>99ORYS>99TH
    EN1500                  :REM*194
1460 PRINTLEFT$(CR$,7)"{CTRL 4}
    "EL$:PRINTLEFT$(CR$,7)TAB(
    10)"{CTRL 9}{SHFT P}RESS {
    SHFT F}{SHFT I}{SHFT R}{SH
    FT E} OR {SHFT R}{SHFT E}{
    SHFT T}{SHFT U}{SHFT R}{SH
    FT N}"                  :REM*185
1470 GOSUB950:GOSUB970      :REM*146
1480 GETG$:JS=PEEK(56320)AND31:
    IFG$<>CHR$(13)ANDJS<>15THE
    N1480                    :REM*21
1490 RETURN                 :REM*102
1500 IFYS>MSTHENPRINTLEFT$(CR$,
    7)TAB(4)"{CTRL 9}{CTRL 5}{
    SHFT Y} O U{3 SPACEs}W I N
    {3 SPACEs}T H E{3 SPACEs}G
     A M E!"                :REM*111
1510 IFMS>YSTHENPRINTLEFT$(CR$,
    7)TAB(6)"{CTRL 9}{COMD 1}{
    SHFT I}{3 SPACEs}W I N{3 S
    PACEs}T H E{3 SPACEs}G A M
     E!"                     :REM*10
1520 POKE896,MG:POKE897,YG:POKE
    898,PU:GOSUB1580         :REM*41
1530 FORL=1TO10:GOSUB950:GOSUB9
    70:NEXT:FORL=0TO3999:NEXT
                            :REM*161
1540 PRINTLEFT$(CR$,7)"{CTRL 4}
    "EL$:PRINTLEFT$(CR$,7)TAB(
    11)"{CTRL 9}{SHFT P}LAY AG
    AIN?{2 SPACEs}[Y/N]"
                            :REM*252
1550 GOSUB950:GOSUB970      :REM*194
1560 POKE198,0:WAIT198,1:GETG$:
    IFG$<>"N"THENRUN        :REM*174
1570 END:GAME                 :REM*2
1580 MG=PEEK(896):YG=PEEK(897):
    PU=PEEK(898)            :REM*243
1590 PRINTLEFT$(CR$,3)TAB(27)"{
    CTRL 9}{COMD 4}"RIGHT$(" "
    +STR$(MS),3)TAB(34)MG
                             :REM*12
1600 PRINTLEFT$(CR$,4)TAB(67)"{
    CTRL 9}{COMD 4}"RIGHT$(" "
    +STR$(YS),3)TAB(74)YG
                            :REM*186
1610 RETURN                 :REM*222
1620 DIM T,T1,T2,L,K,J,DP,MC,YC
    ,MT,YT,MS,YS,MG,YG,PU,MV,J
    S,SK,G$,T$,WC$          :REM*125
1630 DIM CD$(100),CC$(100),CV(1
    00),DK(100),MC(20),YC(20)
                            :REM*103
1640 BK$="{CTRL 4}{COMD A}{3 SH
    FT *s}{COMD S}{5 CRSR LFs}
    {CRSR DN}{SHFT -}{CTRL 9}{
    SHFT D}{SHFT LB.}{COMD *}{
    CTRL 0}{SHFT -}{5 CRSR LFs
    }{CRSR DN}{SHFT -}{CTRL 9}
    {SHFT LB.}{SHFT U}{SHFT LB
    .}{CTRL 0}{SHFT -}{5 CRSR
    LFs}{CRSR DN}{SHFT -}{CTRL
     9}{COMD *}{SHFT LB.}{SHFT
     O}{CTRL 0}{SHFT -}{5 CRSR
     LFs}{CRSR DN}{COMD Z}{3 S
    HFT *s}{COMD X}"        :REM*246
1650 EE$="{CTRL 9}{COMD 4}{2 SP
    ACEs}{2 CRSR LFs}{CRSR UP}
    {2 SPACEs}{2 CRSR LFs}{CRS
    R UP}{2 SPACEs}{2 CRSR LFs
    }{CRSR UP}{2 SPACEs}{2 CRS
    R LFs}{CRSR UP}{2 SPACEs}{
    CTRL 0}"                 :REM*68
1660 EC$="{CTRL 9}{COMD 4}{5 SP
    ACEs}{5 CRSR LFs}{CRSR UP}
    {5 SPACEs}{5 CRSR LFs}{CRS
    R UP}{5 SPACEs}{5 CRSR LFs
    }{CRSR UP}{5 SPACEs}{5 CRS
    R LFs}{CRSR UP}{5 SPACEs}{
    CTRL 0}"                 :REM*28 ►
```

ESTABLISHED 1967

MONTGOMERY GRANT

RUN 2 90

OUTSIDE USA & CANADA..CALL
(718)692-0790
FOR CUSTOMER SERVICE
Call:Mon-Thurs. 9:30-6,
Fri. 9am-4:30pm (718)692-1148

Retail Outlet: Penn Station, Main Concourse
(Beneath Madison Square Garden) NYC, NY 10001
Store Hours: Mon-Thurs 8:30-8/Fri 8:30-3:30/Sat-Closed/Sun 9:30-7
FOR ORDERS & INFORMATION IN USA & CANADA
1-800-759-6565

OR WRITE TO:
Montgomery Grant; Mail
Order Dept. P.O. Box 58
Brooklyn, NY 11230
FAX NO. 7186923372
TELEX 422132 MGRANT

Order Hours: Mon-Thurs, 9:00am-7pm / Fri, 9:00am-4:30pm / Sat-Closed / Sun, 9:30am-6:00pm(ET)
NO SURCHARGE FOR CREDIT CARD ORDERS WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS
DISCOUNTS FOR QUANTITY ORDERS / RUSH SERVICE AVAILABLE / TOLL FREE TECHNICAL SUPPORT

AMIGA

AMIGA 500

Amiga 500 w/512K Built-In 3.5" Disk Drive Mouse FREE Software

$519

AMIGA 500
RGB COLOR PACKAGE

Amiga 500 w/512K Built-In 3.5" Disk Drive Mouse RGB Color Monitor Free Software

$719

AMIGA 500 With 1084......$789
AMIGA 500 With 1084 & 1010 3.5" Drive............$949

AMIGA

AMIGA 2000

A-2000 Computer w/Keyboard 1MB Expandable to 9MB Built-In 3.5" Disk Drive Mouse FREE Software

$1269

AMIGA 2000
RGB COLOR PACKAGE

A-2000 Computer w/Keyboard
3.5" Disk Drive
RGB Color Monitor
Free Mouse & Software

$1469

AMIGA 2000 w/1084 Monitor..........................$1549
AMIGA 2000 w/SEAGATE 40MB H.D.........................$1759

AMIGA 2000 H.D.
$1879

AMIGA 2500
$2679

AMIGA 2500/30 (25MHz)
$3299

C= 64C commodore

$119

INCLUDES:
FREE GAME ($19.95 VALUE)
GEOS PROGRAM
QUANTUM LINK SOFTWARE & MEMBERSHIP

C= 128 D

C-128D with Built-In Disk Drive

$419

COMMODORE C 64-C
STARTER PACKAGE

C/64-C with Excelerator Plus Disk Drive Two Games Softwares
GEOS Program
Quantum Link Software & Membership
FREE Gift Offer

$229

COMMODORE C 64-C
COMPLETE PACKAGE

Commodore C-64/C Computer
Commodore 1541-C Disk Drive
Commodore Color Printer
12" Monitor GEOS Program
Quantum Link Software & Membership

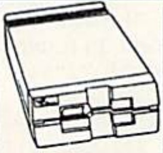
$319

COMMODORE C 64-C
COLOR PACKAGE

Commodore C-64/C Computer
Commodore 1541-C Disk Drive
Commodore Color Printer
Color Monitor GEOS Program
Quantum Link Software & Membership

$429

SEAGATE
20, 30, 40, 60, 80, 100MB
HARD DRIVES IN STOCK



1571 Disk Drive
CALL

1581 Disk Drive
CALL

1541II Disk Drive
Includes Free Game! (a $19.95 Value)
$159.95

Excelerator Plus FSD-2 Disk Drive
Includes Free Game! (a $19.95 Value)
$129.95

1750 RAM Expansion
CALL

1084 Monitor
$279.95

1802 Monitor
$189.95

COMMODORE 128D
COMPLETE PACKAGE

Commodore C/128-D Computer with Built-in Disk Drive
Commodore Color Printer
12" Monitor

$479

COMMODORE 128D
DELUXE PACKAGE

Commodore C/128-D Computer with Built-in Disk Drive
Commodore 1902 RGB Color Monitor
Commodore Color Printer

$629

C/128-D Complete w/1084 Monitor **$699**

1700 RAM Expansion..........................$99.95
#1764 Expansion Module..........................$114.95
XETEC S. Graphix Jr. Interface..........................$29.95
XETEC S. Graphix Sr. Interface..........................$49.95
XETEC Supergraphix Gold..........................$74.95
C-64/C -64C Power Supply..........................$29.95
C-1660 Modem..........................$19.95
C-1670 Modem..........................$59.95
COMMODORE 1350 Mouse..........................$26.95
COMMODORE 1351 Mouse..........................CALL
XETEC Lt. Kernal 20MB Hard Drives for:
C-64C..........................$799
C-128 & 128D..........................$849
XETEC 40MB Hard Drive for:
C-64/128 &128D..........................$1199

WE CAN RECONFIGURE ANY OF OUR COMPUTER PACKAGES TO YOUR SPECIFICATIONS.
CALL FOR INFORMATION.

AMIGA PERIPHERALS

AMIGA 1010 Disk Drive..$149
A-1680 Modem............$99.95
20, 30, 40, 60, 80MB Hard Drives for AMIGA 500/2000......IN STOCK
A-2088D Bridge Card.....$499
A-2286D AT Bridge Board......$1079
A-501 Memory Expansion......................$149
A-1084 RGB Color Monitor......................$279
AMIGA A-2058 RAM Expansion......................$599

ALL OTHER AMIGA PERIPHERALS & HARD DRIVES IN STOCK

EPSON EQUITY II+
IBM AT COMPATIBLE

Keyboard 640K RAM 80286 Microprocessor 1.2MB Floppy Drive 12" Monitor MS DOS 3.3 & GW Basic Wordprocessing, Database & Spreadsheet Software

$969

SAME WITH SEAGATE 20MB HARD DRIVE....$1189
SAME WITH SEAGATE 30MB HARD DRIVE..$1229
SAME WITH SEAGATE 40MB HARD DRIVE..$1289

COMMODORE COLT

COMMODORE COLT Computer 640K 4.77-7.16MHz 2 360K Floppy Disk Drives MS DOS & GW Basic

$619

w/1 Floppy & 20MB Hard Drive..........................$859
COMMODORE COLT w/1084 MONITOR..........................$879

COMMODORE PC-40III

$1399

IBM AT COMPATIBLE 80286/12MHz 1MB RAM 40MB Hard Drive 1.2MB Floppy Video Graphics Card MS DOS 3.3 GW Basic

PRINTERS

HEWLETT PACKARD
HP Deskjet..........................$569.95
HP Deskjet Plus..........................$669.95

EPSON
LX-810....$179.95 LQ-510...$317.95
FX-850..........................$329.95

star
NX-1000C..........................$164.95
NX-1000II..........................$164.95
NX-1000 Rainbow..........................$209.95
NX-1000C Rainbow..........................$209.95
NX-2400..........................$277.95
NX-2410..........................$287.95
XR-1000....$319 XR-1500....$409
XB-2410..........................$409

NEC
P2200XE..........................$309.95
P5200..........................$479.95

OKIDATA
OKIMATE 20.........$139.95
OKIDATA 180.........$219.95
320.........$324.95
390.........$449.95
321.........$449.95

Panasonic
KXP-1180..$164 KXP-3131...$269
KXP-1191..$197 KXP-1124...$279

commodore
MPS-1250..........................$219

Panasonic FX-1650
IBM XT COMPATIBLE PACKAGE

640K 720K Floppy Drive Parallel/Serial Ports MS DOS 3.3 GW Basic 12" Monitor Word Processing, Database & Spreadsheet Software

$499

SAME w/SEAGATE 20MB........$749
30,40MB PACKAGES............CALL

Certified Check, Bank Check, Money Orders, Approved PO's, Mastercard, Visa, Amex, Optima, Diner's Club, Carte Blanche, C.O.D.'s accepted. Please call before submitting P.O.'s. No additional surcharge for credit card orders. Non-certified checks must wait 4-6 weeks for clearance. N.Y residents add applicable sales tax. Prices and availability subject to change without notice. Not responsible for typographical errors. Return of defective merchandise must have prior return authorization number or returns will not be accepted. IBM XT AT are registered trademarks of International Business Machines Corp. Please add 5% shipping & handling (min. $6). Volume orders over $2000 are discounted to 3% shipping & handling. Canadian orders please call for shipping rates. APO FPO orders please add 10% shipping & handling. All APO FPO are shipped first class priority air. All orders can be shipped Air Express. Call for details. D.C.A. #800233

```
1670 EL$="{HOME}{6 CRSR DNs}{2
     CRSR RTs}{CTRL 9}{36 SPACE
     s}{CTRL 0}"          :REM*196
1680 CL$(1)="{COMD 5}{CRSR LF}{
     COMD N}{CRSR LF}{CRSR DN}{
     COMD N}{CRSR LF}{CRSR DN}{
     COMD N}{CRSR LF}{CRSR DN}{
     COMD N}{CRSR LF}{CRSR DN}{
     COMD N}{4 CRSR UPs}"
                          :REM*100
1690 E$="{5 CRSR LFs}{CRSR DN}"
     :CR$="{HOME}{24 CRSR DNs}"
                          :REM*110
1700 LF=54272:HF=54273:WV=54276
     :AT=54277:SR=54278:REM*177
1710 SP=53269:SX=53248:SY=53249
     :SB=53264            :REM*252
1720 POKE54296,15:POKE2040,13:P
     OKE53287,0:POKESP,0
                          :REM*114
1730 POKE53276,1:POKE53285,3:PO
     KE53277,0:POKE53271,1
                          :REM*165
1740 FORL=1TO96STEP8:C$="":FORK
     =1TO4:READD$:C$=C$+D$+E$:N
     EXT:READD$           :REM*211
1750 FORK=0TO7:CD$(L+K)=C$+D$:C
     C$(L+K)=MID$("{2 COMD 3s}{
     2 CTRL 6s}{2 COMD 7s}{2 CT
     RL 8s}",K+1,1):CV(L+K)=T
                          :REM*178
1760 NEXT:T=T+1:NEXT      :REM*235
1770 C$="":FORK=1TO4:READD$:C$=
     C$+D$+E$:NEXT:READD$
                          :REM*22
1780 FORL=97TO100:CD$(L)=C$+D$:
     CC$(L)="{CTRL 1}":CV(L)=12
     :NEXT                :REM*72
1790 FORL=1TO100:DK(L)=L:NEXT
                          :REM*18
1800 IFPEEK(1024)=160THEN1840
                          :REM*242
1810 FORL=832TO897:READK:POKEL,
     K:NEXT               :REM*246
1820 FORL=900TO933:READK:POKEL,
     K:NEXT               :REM*17
1830 PU=1:POKE898,1       :REM*217
1840 RETURN               :REM*185
1850 DATA "0{3 SPACEs}0"," {CTR
     L 9}{COMD V} {COMD C}{CTRL
      0} "," {CTRL 9} {CTRL 0}
     {CTRL 9} {CTRL 0} "," {CTR
     L 9}{COMD F} {COMD D}{CTRL
      0} ","0{3 SPACEs}0"
                          :REM*36
1860 DATA "1{3 SPACEs}1"," {COM
     D D}{CTRL 9} {CTRL 0}{2 SP
     ACEs}","{2 SPACEs}{CTRL 9}
      {CTRL 0}{2 SPACEs}"," {CO
     MD D}{CTRL 9} {CTRL 0}{COM
     D F} ","1{3 SPACEs}1"
                          :REM*228
1870 DATA "2{3 SPACEs}2"," {CTR
     L 9}{COMD V}{COMD O}{COMD
     C}{CTRL 0} "," {CTRL 9}{2
     COMD Us}{COMD D}{CTRL 0} "
     ," {CTRL 9} {2 COMD Us}{CT
     RL 0} ","2{3 SPACEs}2"
                          :REM*2
1880 DATA "3{3 SPACEs}3"," {CTR
     L 9}{COMD V}{COMD O}{COMD
     C}{CTRL 0} ","{2 SPACEs}{S
     HFT *}{CTRL 9}{SHFT *}{CTR
     L 0} "," {CTRL 9}{COMD F}{
     COMD U}{COMD D}{CTRL 0} ",
     "3{3 SPACEs}3"       :REM*24
1890 DATA "4{3 SPACEs}4"," {CTR
     L 9}{COMD Y}{COMD K}{CTRL
     0}{COMD K} "," {CTRL 9} {C
     OMD V}{COMD C}{CTRL 0} ","
     {2 SPACEs}{CTRL 9}{COMD K}
     {CTRL 0}{COMD K} ","4{3 SP
     ACEs}4"              :REM*29
1900 DATA "5{3 SPACEs}5"," {CTR
     L 9} {2 COMD Ps}{CTRL 0} "
     ," {CTRL 9}{2 COMD Ps}{COM
     D C}{CTRL 0} "," {CTRL 9}{
     COMD F}{COMD Y}{COMD D}{CT
     RL 0} ","5{3 SPACEs}5"
                          :REM*29
1910 DATA "6{3 SPACEs}6"," {CTR
     L 9}{COMD V}{COMD O}{COMD
     C}{CTRL 0} "," {CTRL 9} {C
     TRL 0}{SHFT *}{CTRL 9}{COM
     D U}{CTRL 0} "," {CTRL 9}{
     COMD F}{COMD Y}{COMD D}{CT
     RL 0} ","6{3 SPACEs}6"
                          :REM*181
1920 DATA "7{3 SPACEs}7"," {CTR
     L 9}{COMD @}{COMD O} {CTRL
      0} ","{2 SPACEs}{CTRL 9}{
     COMD K}{CTRL 0}{COMD K} ",
     "{2 SPACEs}{CTRL 9} {CTRL
     0}{2 SPACEs}","7{3 SPACEs}
     7"                   :REM*131
1930 DATA "8{3 SPACEs}8"," {CTR
     L 9}{COMD V}{COMD O}{COMD
     C}{CTRL 0} "," {CTRL 9}{SH
     FT *}{CTRL 0}{SHFT *}{CTRL
      9}{SHFT *}{CTRL 0} "," {C
     TRL 9}{COMD F}{COMD U}{COM
     D D}{CTRL 0} ","8{3 SPACEs
     }8"                  :REM*106
1940 DATA "9{3 SPACEs}9"," {CTR
     L 9}{COMD V}{COMD O}{COMD
     C}{CTRL 0} "," {CTRL 9}{CO
     MD O}{CTRL 0}{SHFT *}{CTRL
      9} {CTRL 0} "," {CTRL 9}{
     COMD F}{COMD U}{COMD D}{CT
     RL 0} ","9{3 SPACEs}9"
                          :REM*104
1950 DATA "{SHFT S}{4 SPACEs}",
     "K{CTRL 9}{COMD V}{COMD P}
     {COMD @}{CTRL 0}{SHFT T}",
     "I{CTRL 9}{COMD F}{SHFT A}
     {COMD C}{CTRL 0}U","P{CTRL
      9}{COMD T}{COMD Y}{COMD D
     }{CTRL 0}R","{4 SPACEs}N"
                          :REM*219
1960 DATA "{SHFT D}{3 SPACEs}{S
     HFT C}","R{CTRL 9} {COMD I
     }{COMD C}{CTRL 0}A","A{CTR
     L 9} {CTRL 0} {CTRL 9} {CT
     RL 0}R","W{CTRL 9} {CTRL 0
     }{COMD I}{CTRL 9}{COMD D}{
     CTRL 0}D","2{3 SPACEs}S"
                          :REM*20
1970 DATA "{SHFT W}{4 SPACEs}",
     "I{CTRL 9} {CTRL 0} {CTRL
     9} {CTRL 0}{SHFT C}","L{CT
     RL 9}{COMD G}{CTRL 0}{SHFT
      -}{CTRL 9}{COMD M}{CTRL 0
     }A","D{CTRL 9}{COMD J}{SHF
     T -}{COMD L}{CTRL 0}R","{4
      SPACEs}D"           :REM*22
1980 DATA 170,170,128,149,085,1
     28,149,106,128,149,106,128
     ,149,090,000,149     :REM*29
1990 DATA 086,128,153,085,160,1
     54,085,104,154,149,090,170
     ,165,090,168,169     :REM*80
2000 DATA 106,000,042,168,000,0
     10,160,000,002,128,000,000
     ,000,000,000,000     :REM*246
2010 DATA 000,000,000,000,000,0
     00,000,000,000,000,000,000
     ,000,000,000,0,0,0:REM*156
2020 DATA 162,170,169,11,157,63
     ,217,157,233,217,157,147,2
     18,157,61,219,169 :REM*201
2030 DATA 160,157,63,5,157,233,
     5,157,147,6,157,61,7,202,2
     08,225,96            :REM*115
2040 PRINT"{SHFT CLR}{CTRL N}{C
     TRL 9}{COMD 4}{18 SPACEs}{
     COMD A}{20 SHFT *s}{COMD S
     }";                  :REM*75
2050 PRINT"{CTRL 0}{COMD F}{COM
     D D}{2 COMD Is}{COMD C}{CT
     RL 9} {CRSR RT}{3 SPACEs}{
     CRSR RT} {CTRL 0}{COMD V}{
     3 COMD Is}{COMD C}{CTRL 9}
      {SHFT -}{7 SPACEs}{SHFT S
     }CORE{2 SPACEs}{SHFT G}AME
     S {SHFT -}";         :REM*157
2060 PRINT"{CTRL 0}{COMD K}{CTR
     L 9}{COMD K}{2 SPACEs}{CRS
     R RT} {CRSR RT}{3 SPACEs}{
     CRSR RT} {CRSR RT}{3 SPACE
     s}{CRSR RT} {SHFT -} {SHFT
      C}OMP:{14 SPACEs}{SHFT -}
     ";                   :REM*216
2070 PRINT"{CTRL 0}{COMD V}{COM
     D C}{CTRL 9}{2 COMD Is}{CT
     RL 0}{COMD D}{CTRL 9} {CTR
     L 0}{COMD F}{CTRL 9}{3 COM
     D Is}{CTRL 0}{COMD D}{CTRL
      9} {CTRL 0}{COMD F}{CTRL
     9}{3 COMD Is}{CTRL 0}{COMD
      D}{CTRL 9} {SHFT -} {SHFT
      Y}OU:{15 SPACEs}{SHFT -}"
     ;                    :REM*56
2080 PRINT"{CTRL 9}{18 SPACEs}{
     COMD Z}{20 SHFT *s}{COMD X
     }";                  :REM*236
2090 PRINT"{CTRL 9}{2 SPACEs}{3
     6 COMD @s}{2 SPACEs}";
                          :REM*111
2100 PRINT"{CTRL 9} {COMD M}{36
      SPACEs}{COMD G} ";
                          :REM*212
2110 PRINT"{CTRL 9}{2 SPACEs}{3
     6 COMD Ts}{2 SPACEs}"
                          :REM*166
2120 GOSUB1580:SYS900:RETURN
                          :REM*205
```

■

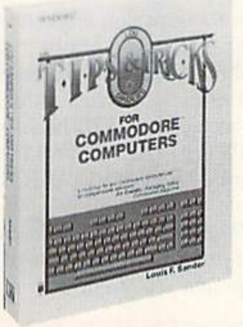
Get A Goldmine of Tips and Projects for Your Commodore

NEW
LOU SANDER'S
GOLD MINE
GAME TIPS FOR COMMODORE USERS

Build Up Your Game Strategies!

LOU SANDER'S GOLD MINE: Game Tips for Commodore™ Users by Lou Sander

Sharpen your game-playing skills with over 1200 tips on 500 + popular software games in this one handy volume! Master such favorites as "Breakthru," "Defender of the Crown," "GUNSHIP," "The Last Ninja," "Legacy of the Ancients," and more with these proven pointers. This rich assortment of winning formulas offers the best of Lou Sander's popular "Gold Mine" column, plus hundreds of tips never before published! 352 pp./illustrated.
No. 3323H, $28.95 Hardcover



Stretch Your Commodore's Capabilities!

LOU SANDER'S TIPS AND TRICKS FOR COMMODORE COMPUTERS by Louis F. Sander

". . . good reading and an indispensable reference tool."

—James Gracely, Managing Editor, *Commodore Magazine*

Enjoy EVEN MORE tips from Lou Sander, columnist of Commodore Magazine's "Tips and Tricks." Includes 500 + user-tested tips and ready-to-use programs—many never before in print! Get valuable programs to create an easy word processor, memory saver, search mechanism, mode guard, and more. Plus, you get answers to your questions on: setting up and operating the computer; improving programming skills; and maximizing disks, printers, monitors, keyboards, peripherals, and more.
412 pp./illustrated. **No. 3192P, $21.95 Paperback**

ELECTRONIC PROJECTS FOR YOUR COMMODORE 64 AND 128
John Iovine

Do Amazing Things with Your Commodore—for Under $65!

ELECTRONIC PROJECTS FOR YOUR COMMODORE 64™ AND 128™ by John Iovine

Maximize the performance and value of your Commodore 64 or 128 with 11 useful, fun-filled electronics projects from Commodore Magazine's "Projects" columnist John Iovine! This step-by-step guide shows how you can make • A simple LED interface for the user port • Appliance controller • Full-featured digital camera • Speech synthesizer • and more. 187 pp./148 illus. **No. 3083P, $15.95 Paperback**

More Bestselling Books for the Commodore User

Advanced Commodore 128 Graphics and Sound Programming *by S. Krute.* 404 pp./72 illus. (#2630H, $21.95 Hardcover)

The Commodore Programmer's Challenge: 50 Challenging Problems to Test Your Programming Skills—with Solutions in BASIC™, Pascal® and C® *by S. Chen.* 218 pp./illustrated. (#2817P, $14.95 Paperback)

Commodore 128 BASIC: Programming Techniques *by M. Hardee.* 190 pp./120 illus. (#2732P, $12.95 Paperback)

Commodore 128 Data File Programming *by D. Miller.* 297 pp./illustrated. (#2805P, $16.95 Paperback)

Serious Programming for the Commodore 64 *by H. Simpson.* 208 pp./124 illus. (#1821P, $12.95 Paperback)

1001 Things to Do with Your Commodore 128 *by M.R. Sawusch/D. Prochnow.* 206 pp./74 illus. (#2756P, $12.95 Paperback)

TAB TAB BOOKS Inc.
Blue Ridge Summit, PA 17294-0840

TO ORDER CALL TOLL FREE 1-800-343-0728

Ask for the TAB BOOKS Operator

Or mail ad to: TAB BOOKS Inc., Blue Ridge Summit, PA 17294-0840.

YES, please send me the following book(s). Please Print

Book # __________ Title ____________________ $ ________

Book # __________ Title ____________________ $ ________

Shipping and Handling ($5 outside the U.S.A.) $ 3.00

(In PA, NY, and ME add applicable sales tax.) $ ________

TOTAL $ ________

☐ Check or money order enclosed made payable to TAB BOOKS Inc.

Charge my ☐ VISA ☐ MasterCard ☐ American Express

Acct. No. ______________________________ Exp. ________

Signature ______________________________

Name ______________________________

Address ______________________________

City ______________________________

State/Zip ______________________________

Prices subject to change. RM129

Super Fonts

Now RUN Paint users can create characters that are over four times the size of those in regular Commodore character sets.

◆

By ROBERT ROCKEFELLER

RUN Paint can use two types of fonts: normal Commodore character sets and 16-bit fonts that are four times as big.

Creating the 16-bit fonts requires a RUN Paint work disk and a font file saved on that disk. Type in Listing 1 and save it to the RUN Paint work disk. Run it once to create a file named "RPU. CONVERT16" on that disk. Next, load and run RUN Paint. Then re-insert the work disk with the "RPU.CONVERT16" file on it. To execute, click on UTILITY on the DISK LOAD submenu and CONVERT16 on the utility screen.

After the utility executes, you get a prompt saying "hires or medres (h/m) ?". Enter h to convert a character set to a 16-bit font for use in Hi-Res mode, or m to do the same thing in Med-Res mode. A list of all the font files on the disk will appear.

Click on the font you wish to convert. The converted file will output to the disk with a slightly different filename. For example, an 8-bit font that's named RPF. ITALICS converts to a 16-bit hi-res font named RPF.HBITALICS and to a medres font named RPF.MBITALICS. Ⓡ

Robert Rockefeller has contributed many articles and programs to RUN, *most notably RUN Script and RUN Paint.*

Listing 1. Font-conversion utility program. (Available on ReRun disk. See card at page 36.)

```
0 REM THIS PROGRAM CREATES (AND
   SHOULD NOT BE CALLED) RPU.CO
  NVERT16                :REM*108
5 OPEN 8,8,8,"RPU.CONVERT16,P,W
  "                       :REM*30
6 CT=0:PRINT"{SHFT CLR}":REM*56
10 READ A$:IF A$="-1" THEN CLOS
   E8:PRINT:PRINT"ALL DONE!":EN
   D                     :REM*129
12 PRINT"{HOME}READING LINE "+S
   TR$(CT):CT=CT+1       :REM*141
15 IF LEN(A$)<62 THEN 55
                         :REM*254
20 B$=MID$(A$,1,20)+MID$(A$,22,
   20)+MID$(A$,43,20)   :REM*242
25 FOR I=1 TO 30         :REM*181
30 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                         :REM*209
35 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55              :REM*85
40 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55             :REM*136
45 BY=H*16+L:PRINT#8,CHR$(BY);
                          :REM*67
50 NEXT:GOTO 10          :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT
   O 70                  :REM*184
60 IF LEN(A$)<42 THEN B$=LEFT$(
   A$,20)+RIGHT$(A$,(LEN(A$)-21
   )):GOTO 70            :REM*176
65 B$=LEFT$(A$,20)+MID$(A$,22,2
   0)+RIGHT$(A$,LEN(A$)-42)
                         :REM*140
70 FOR I=1 TO LEN(B$)/2:REM*221
75 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                         :REM*140
80 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55              :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55              :REM*84
90 BY=H*16+L:PRINT#8,CHR$(BY);
                         :REM*148
95 NEXT:GOTO 10          :REM*160
100 REM HEX LOADER FOR 16-BIT R
    UNPAINT FONTS        :REM*242
101 DATA 006C4C946C9399434F4E*5
    64552543A2043484152*4143544
    552530DD3D4C1         :REM*31
102 DATA D4D5D33A0DC0C0C0C0*C
    0C0C0C0C0C0C0C0*C0C0C
    0C0C0C0C0             :REM*48
103 DATA C0C0C0C0C0C0C0C0*C
    0C0C0C00D0130D0D*0D0D124
    8924952455320        :REM*131
104 DATA 4F522012 4D9245445245*5
    33F2000 2C502C575250*4620522
    E522E0F00003          :REM*66
105 DATA 0C0F30333C3FC0C3CCCF*F
    0F3FCFF0001040 51011*1415404
    144455051545 5        :REM*64
106 DATA 20FC6DA24BA06CA90120*B
    C26F0F2E048F007E04D*D0EAA91
    02CA9008D2E6E         :REM*97
107 DATA 20FC6DA9032 02A289001*6
    020FC6DA002AEDC14A9*7E20BAF
    F20C0FF90034C        :REM*116
108 DATA CA272023279008A97E20*C
    3FF4CE127A9FF20036E*A0028C3
    16EB9346ED968        :REM*124
109 DATA 6CD005C8C00A90F3C00A*D
    013B9346EC8C907F008*A97E20C
    3FF4CF2278C31        :REM*188
110 DATA 6EAC291588B913159915*1
    5C007B0F5AD2E6EF003*A94D2CA
    948991315A942         :REM*39
111 DATA 991415AD291518690 6C9*1
    69002A9168D2915A8A2*03BD666
    C99121588CA10        :REM*153
112 DATA F6AD2915A213A01520BD*F
    FA003AEDC14A97F20BA*FF20C0F
    F90034CCA2720        :REM*184
113 DATA 7529B0DFA27F20C9FFB0*F
    1A96020D2FF20D2FFA2*6AA06C2
    0A026A9008D30        :REM*123
114 DATA 6EAD306EC96490 0D20CC*F
    FA97E20C3FFA97F4CC3*FFA9008
    D2F6EAC316EB9         :REM*64
115 DATA 346EAA29F04A4A4A4A18*6
    D2E6EA8B9746C20D2FF*488A290
    F186D2E6EA8B9        :REM*113
116 DATA 746C20D2FFAA6820D2FF*8
    A20D2FFEE316EAD316E*CD336E9
    0122C326E70AE         :REM*49
117 DATA 20CCFFA9FF20036EA27F*2
    0C9FFEE2F6EAD2F6EC9*0890A9E
    E306ED08BF090        :REM*227
118 DATA A203A06C4CA0268D336E*A
    27E20C6FFA0008C316E*20E4FF9
    9346EC8A5908D        :REM*191
119 DATA 326E249070 05CC336E90*E
    B8C336E0820CCFF2860 :REM*43
120 DATA -1             :REM*233 ■
```

RUN it right: **C-64 or C-128; printer; RUN Paint work disk containing a font file**

The Best Prices & Service

GEOS & Mouse Combo

Save Up To $40^55

GEOS
GEOS 128
2.0

GEOS & Mouse Combo. Get the most out of your C64 or C128 with GEOS and a mouse. Combine the great features of GEOS - a Mac-like user interface, a graphic word processor, and more - with the ideal input device - a high quality mouse. For full specifications see page 30 (GEOS) and page 49 (M3 Mouse).

To help you bring your Commodore into the graphics age, we're offering an additional $5.00 saving off our already low prices. You'll save up to $40.55 off retail pricing. To take advantage of the savings, just order one of the packages below:

GEOS 2.0, C64, Disk	Sug.Retail	$59.95
	43922	**$39.95**
M3 Mouse	Sug. Retail	$49.50
	82704	**$38.95**
$5.00 Discount	**87208**	**-$5.00**
	You Pay Only	**$73.90**
GEOS 128 2.0, C128, Disk	Sug. Retail	$69.95
	68956	**$44.95**
M3 Mouse	Sug. Retail	$49.50
	82704	**$38.95**
$5.00 Discount	**87208**	**-$5.00**
	You Pay Only	**$78.90**

$129^95

Commodore 64C

The complete computer for home, school and small business. Supported by high-quality peripherals and over 10,000 software programs. Full typewriter-style keyboard, 64K RAM, eight sprites, three voices.

64C Computer	**54574**	**$129.95**

Commodore Hardware

1670 Modem, 1200 Baud	**36952**	**$69.95**
1351 Mouse C64/C128	**37885**	**$32.95**
1802C Composite Monitor	**54595**	**$199.95**
1581 3.5" Disk Drive	**74023**	**$179.95**
1541 II Disk Drive	**54586**	**$CALL**
1764 RAM Expansion C64	**72513**	**$114.95**

Now For Amiga, Too!

MINIMODEM-C24
AVATEX

2400 Baud C64/C128

$79^95

Both the Minimodem-C and C24 are completely Hayes compatible (not just partially compatible like the 1670 and some Avatex models) **and** 1670 compatible. This means they'll work with ALL communications software for the 64, 64C, and 128. Key features include seven status indicators, Busy Detect, DTR signal support, High Speed Detect Line, and Auto Answer/Auto Dial. Includes Multiterm 64 and 128 software so you can start communicating right away, plus a free trial hour on CompuServe! Full-year warranty.

1200 Baud C64/C128

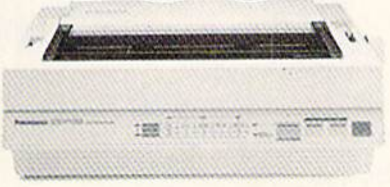
$59^95

The Amiga versions of the Minimodems are equipped with a female connector to plug directly into the Amiga 500 or 2000. They need no external wall plug for power, and they use the Amiga's internal speaker for maximum fidelity.

Minimodem-C24 (2400 Baud for C64/C128)	**88148**	**$79.95**
Minimodem-C (1200 Baud for C64/C128)	**81576**	**$59.95**
Minimodem-AM24 (2400 Baud for Amiga)	**88150**	**$79.95**
Minimodem-AM (1200 Baud for Amiga)	**88160**	**$64.95**

BLAZING 192cps

$189^95



Panasonic KX-P1180

Select over 11 functions on front panel. Four NLQ fonts and two draft fonts, each sized 5 to 20 char./in. Proportional spacing. Graphics 240x216 dpi. Draft at 192cps, NLQ at 38cps. Push or pull tractor feed. Two year warranty.

Panasonic KX-P1180	**82779**	**$189.95**

FREE 60 PAGE CATALOG

The Everything Book For
COMMODORE & AMIGA
Computers
GEOS 128
BATMAN
GEOS 2.0 Versions
MANY NEW ITEMS!
Call Today 1-800-PROMPT-1
TENEX

Thousands of products for your COMMODORE 64, 128 and AMIGA computers. CALL TODAY to receive your FREE copy!

Disk Drive Includes FREE Software!

$149^95

FSD-2 Excelerator+

- Completely Commodore Compatible
- Faster, quieter, and more reliable
- Separate power supply eliminates overheating
- Full one year warranty
- FREE racing simulation game

While supplies last, we're bundling an exciting racing simulation game with each drive! To get your copy, order item No. 83262 with your disk drive.

		Sug. Retail $179.95
FSD-2 Excelerator+	**66166**	**$149.95**

Star NX-1000 II

$CALL

All the great features of the NX-1000 and more. Prints at 180 cps (draft mode, 12 cpi) and 45 in near letter quality. (150 cps draft and 38 cps NLQ at 10 cpi.) Parallel input port for direct cable connection to IBM or Amiga. To use with Commodore requires a parallel interface cable.

Star NX-1000 II	**86719**	**$CALL**
Black Ribbon	**75471**	**$5.95**

TENEX™ Computer Express

We gladly accept mail orders!

TENEX Computer Express
P.O. Box 6578
South Bend, IN 46660
(219) 259-7051 — FAX (219) 255-1778

No Extra Fee For Charges!

VISA MasterCard

We Verify Charge Card Addresses

***Shipping, Handling, Insurance**

Order Amount	Charge
less than $19.99	$3.75
$20.00-$39.99	4.75
$40.00-$74.99	5.75
$75.00-$149.99	6.75
$150.00-$299.99	7.75
$300.00 & up	$CALL

ORDER TODAY CALL 1-800-PROMPT-1

COMMODORE 64 and COMMODORE 128 are registered trademarks of Commodore Electronics, Ltd. AMIGA is a registered trademark of Commodore Amiga Inc., NOTE: Due to publishing lead-times, product prices and specifications are subject to change without notice. * APO, FPO, AK, HI, CN, VI, GU, and foreign orders are subject to additional shipping charges. R3N

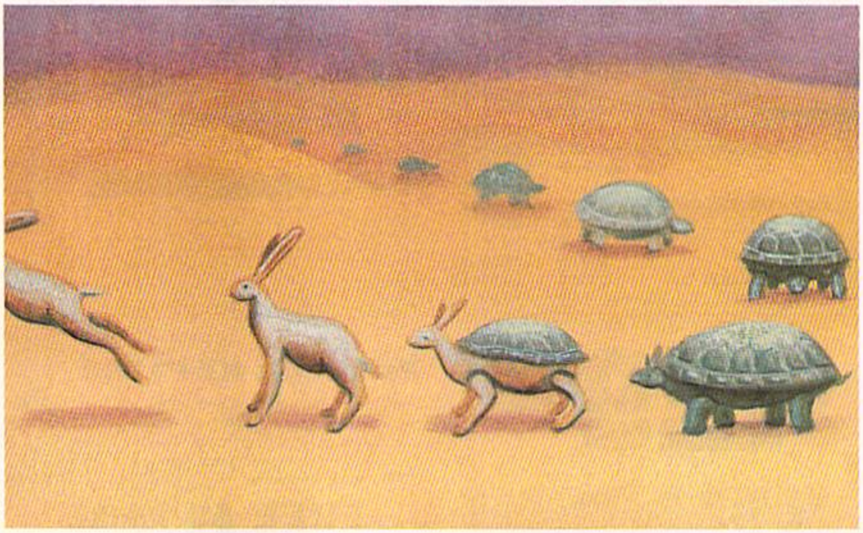
Circle 155 on Reader Service card.

Fast-40

Speed up your C-128 40-Column-mode programs even if you're in 64 mode.

◇

By BRET TIMMINS



One of the best features of the C-128 is its speed increase over earlier Commodore computers when plowing through a lot of data or recalculating numbers frequently. However, in 40-Column mode, the extra speed comes with a trade-off: The VIC-II, the graphics chip that handles 40-column displays, won't work properly at speeds higher than 1 MHz (Slow mode) and must be turned off during 2 MHz (Fast mode).

To alleviate this situation, I've written Fast-40, a small machine language program for the C-128 that speeds up 40-column Basic and machine language programs from 20 to 100 percent. In the process, it keeps all or part of the screen visible, the amount depending on the speed increase chosen.

There are separate versions of Fast-40 for 128 and 64 modes. You'll find them in Listing 1 and Listing 2, respectively. Type in the version you need, using *RUN*'s Checksum program to detect any typing errors, and save it to disk. Then run the version you need to create the appropriate machine language program. See the running instructions with the listings for the loading command for each program.

SPEEDING THINGS UP

Although nothing appears to change after running Fast-40, your C-128 is processing data about 20 percent faster than its normal 40-column speed. This is the maximum speed at which Fast-40 can operate and still display the entire screen.

To speed processing further, hold down the control key and press the plus key. A blank, light gray line will cover the first row of the screen. Pressing control/plus again will blank the second line of the screen, and so on. Each blank line represents a speed increase of three to four percent. Control/plus can be held down until all but the bottom row of the screen is blank, for a 98 percent increase in speed over normal 1 MHz mode.

To decrease the speed and see more of the screen, press control/minus. Holding down control/minus for a couple of seconds will return the screen to normal, but leave the processing speed 20 percent faster.

You can, from within a program, set the speed at which Fast-40 operates by poking memory location 6415 in the 128-mode version, or 52515 in the 64 version, with a value from 50 to 242. Fast-40 uses this value to determine how many lines should be blank on the screen. The default value is 50—no blank lines and a 20 percent speed increase. The maximum value is 242—24 blank lines and a 98 percent speed increase. For smooth screen transitions, this memory location should be poked only with values from 50 to 242 that are in increments of eight: 50, 58, 66, 74, and so on.

If you need still more speed, you can achieve full 2 MHz mode by pressing control/F. This blanks the entire screen in the current border color. Press shift/control/F to return to 1 MHz mode. You can turn on full Fast mode when you're in Program mode with SYS 6403 for the 128 version, or SYS 52503 for the 64 version; SYS 6406 (128) or SYS 52506 (64) turns it off.

CAVEATS

Although I made Fast-40 as uncrashable as I could, there are times when it should be disabled. Peripherals (disk drives, printers, modems, and such) require precise timing to work properly, and Fast-40 can throw this timing off. In 128 mode, this isn't much of a problem, since the operating system automatically sets 1 MHz mode each time it accesses a peripheral. However, the screen will get messy.

In 64 mode, the operating system thinks it's always working at 1 MHz, so it'll lock up if Fast-40 is active during ►

RUN it right: **C-128 in 40-Column mode or C-128 in 64 mode.**

ILLUSTRATED BY PAUL COZZOLINO

64 Doctor

A professional diagnostic cartridge for your Commodore 64

- Simply insert cartridge & port connectors
- Tests serial, user and control ports
- Allows for a full keyboard test
- Many chips tested including NMI & IRQ
- Sound channels and graphics tested
- BASIC Kernal & ROM tested
- Screen table clearly displays the results
- All defective chips are highlighted
- Location and CBM part numbers displayed
- Buy the parts and repair it yourself
- Or tell your dealer what's wrong & where

$69.95

NEW!

SUPER TRACKER

At last an easy way to find out where the protection really is. **Super Tracker** will display the location of your drive head while you are loading a piece of software. This information will be very useful to find where the protection is. Super Tracker has other useful options such as track and half track display, 8 and 9 switch, density display, write protect on/off. This incredible little tool is encased in a handsome box that sits on top of your drive. Works with all C.64/128 and most C/64 compatible drives. Some minor soldering will be required.

Super Tracker $69.95

NEW!

SUPER CARTRIDGE

The **Ultimate Utility Cartridge** packed full of useful utilities. Super fast file copier, nibbler, sector editor, graphic label maker, just to mention a few. 128K of software at your finger tips. Super Cartridge can be shut off and uses no memory.

Super Cartridge $49.95

GRAPHIC PACK..**$24.95**

Our best selling graphic programs plus more, all on one disk. **Graphic label maker, Photo-Copy, Super Label, Converter** (converts Print Shop to Print Master), and **Sprite Editor.** Plus we'll add 60 graphics.

PARAMETERS CONSTRUCTION SET

The company that has **The Most Parameters** is about to do something **Unbelievable.** We are giving you more of our secrets. Using this **Very Easy** program, it will not only **Read, Compare** and **Write Parameters for You;** it will also **Customize** the disk with your name. It will impress you, as well as your friends. The **"Parameter Construction Set"** is like nothing you've ever seen. In fact, you can even **Read Parameters** that you may have already written; then by using your construction set, rewrite it with your new **Customized Menu. $24.95.**

New from Europe

XX Rated Game	$24.95	Lock Pik Books 1 & 2	29.95
All New B.B.S.	19.95	D.N. Coder	14.95
Super 1000 Paramters Pak	39.95	Master Lock	9.95
Super 1000 Graphics Pak	29.95		
Blitz Decompiler	19.95		
1541 Mash Drive Alignment	14.95		
Top Secret Stuff 1 & 2	14.95		

ADD $4.00 Shipping & Handling
ADD $3.00 for C.O.D. in USA Only
VISA and MasterCard Accepted

UTILITIES UNLIMITED, Inc.

P.O. Box 532
North Plains, OR 97133

If you wish to place your order by phone
CALL (503) 647-5611 24 Hrs A Day!

SUPER-CARD +

Have you been watching the war over the "best" backup utility? We would like to state the facts, and put this war to an end . . . once and for all!

- Utilities Unlimited was the FIRST to create a fully functional whole track copier. Our prototype was designed December 6, 1984. Since that time, the product has evolved into the most successful archiver ever created!
- Ultilities Unlimited was FIRST in creating this product for ALL disk drives: 1541/1541C/1541-II/1571/SX-64/ALL Commodore compatibles. While it is true that some of the units required soldering, it is very simple. We offer an installation service for those customers that do not wish to install the card themselves.
- Why would you WANT to wait for parameters? During that waiting period, your precious software could be destroyed! With **SUPER-CARD+** you need not wait! The software is user selectable. So if special changes are required, you can do it yourself! NO WAITING FOR MONTHS. What about those special changes? They (if actually required) are available by calling our office, or through QUANTAM LINK. We can tell you how to backup your software THE SAME DAY YOU GET IT! All versions of our **SUPER-CARD+** software include the latest settings. Even our competitor agrees that we can copy EVERYTHING with the proper settings . . . and we have them!
- Updates — Approximately every 6 weeks we release an update of our software that includes new utilities, copiers, and settings. ALL updates are $5.00... which we feel is a very reasonable fee. Updates are NOT required.
- Across the nation, software rental stores use **SUPER-CARD+** to backup their originals. Our **SUPER-CARD+** has been tested in Europe and has been chosen as the BEST backup utility!
- **SUPER-CARD+** comes complete with the hardware card, documentation, and the latest software release (version 3.0).

So, the facts are on the table . . . you decide for yourself. By the way, they say that *"imitation is the highest form of flattery"* . . . thanks guys!

ONE BOARD FITS ALL DRIVES

Single..................................$59.95   Dual.................................$109.95

FINAL CARTRIDGE III

No other cartridge adds 64K of ROM. The additional 32K of RIM is dedicated to a unique desk top accessory, setting it apart from the other cartridges.

Final Cartridge III is inspired by the Amiga and Macintosh. The function keys are laid out logically and are easy to remember. The tool kit is the largest collection on any cartridge (almost 30 commands). Just to mention some of the features — Fastload (15X) Backup, Freezer, Printer FR, Word Problems, Pop-Up Calculator, Color Screen Dump and Windows. **All for only $69.95**

Allow 3-4 Weeks for Delivery
All Sales Are **FINAL**
Unless Authorized by Management

VIDEO BYTE II - the only FULL COLOR! video digitizer for the C-64, C-128

Introducing the world's first **FULL COLOR!** video digitizer for the Commodore C-64, 64-C, C-128 & 128-D computer. **VIDEO BYTE** can give you digitized video from your VCR, B/W or COLOR CAMERA or OFF THE AIR or CABLE VIDEO (thanks to a fast! 2.2 sec. scan time). New version 3.0 software features full RE-DISPLAY with MULTI CAPTURE MODE, MENU SELECT PRINTING, EXPANDED COLORIZING FEATURES, SAVE to DISK FEATURE AND MUCH MORE!

FULL COLORIZING! is possible, due to a unique SELECT and INSERT color process, where you can select one of 15 COLORS and insert that color into one of 4 GRAY SCALES. This process will give you over 32,000 different color combinations to use in your video pictures. **SAVES as KOALAS!** Video Byte II allows you to save all your pictures to disk as FULL COLOR KOALA'S. After which (using Koala or suitable program) you can go in and redraw or recolor your V.B. pic's. **LOAD and RE-DISPLAY!** Video Byte II allows you to load and re-display all Video Byte pictures from inside Video Byte's menu. **MENU DRIVEN!** Video Byte II comes with an easy to use menu driven UTILITY DISK and digitizer program (64 MODE ONLY). **COMPACT!** Video Byte II's hardware is compact! In fact no bigger than your average cartridge! Video Byte comes with it's own cable. **INTEGRATED!** Video Byte II is designed to be used with or without EXPLODE! V5.0 color cartridge. Explode! V5.0's menu will return you to VIDEO BYTE II's menu. Explode! V5.0 is the **PERFECT COMPANION!** Video Byte II users are automatically sent **FREE SOFTWARE** updates along with new documentation, when it becomes available. **PRINT!** Video Byte II will printout pictures in BLACK and WHITE GREY SCALE to most printers. However, when used with Explode! V5.0, your printouts can be done IN FULL COLOR 8x11's on the **RAINBOW NX-1000, RAINBOW NX-1000C, JX-80, Seikosha3000 AI. (OKIDATA 10/20's (print larger 6"by9") USER SLIDE SHOW program w/auto or manual display is standard with VIDEO BYTE program. And can be backed up!)**

ONLY $\$79^{95}$

Why DRAW a car, airplane, person or for that matter. . . anything when you can **BYTE it . . . Video Byte it instead.**

NEW! SUPER CARTRIDGE By The Soft Group EXPLODE! V.5

The **MOST POWERFUL, DISK DRIVE and PRINTER CARTRIDGE** ever produced for the COMMODORE USER, Super **USER FRIENDLY** with all the features most asked for. New FEATURES. . . (a) Faster non-blanking FASTLOAD. (b) MIRROR imaging of all HI-RES screens. (c) 4 Way color selection with insert, for all HI-RES screens. (d) Infinite FILE COPY for all SEQ. & PRG. files, copy your file only once, then write that file to as many disks as you like. . . great for single file copying by small user groups. (e) **FULL COLOR PRINTING of ALL COLOR HI-RES & MULTI-COLOR SCREENS to ALL COLOR DOT MATRIX PRINTERS** (not for INK JET printers). (f) Direct ONE KEY access back to VIDEO BYTE software thru EXPLODE! V5.0's MENU. (g) Supports all popular printer interfaces. (h) FREE upgraded utility disk.

ONLY $\$44^{95}$

THE 128 SUPERCHIP - A, B or C (another first)

A — There is an empty socket inside your 128 just waiting for our **Super Chip** to give you 32K worth of great Built-in Utilities, all at just the Touch of a Finger. You get built-in features: **Files Copier, Nibbler, Track & Sector Editor, Screen Dump,** and even a 300/1200 baud **Terminal Program** that's 1650, 1670 and Hayes compatible. Best of all, it doesn't use up any memory. To use, simply touch a function key, and it responds to your command.

B — **HAS SUPER 81 UTILITIES,** a complete utility package for the 1581. Copy whole disks from 1541 or 1571 format to 1581. Many options include 1581 disk editor, drive monitor, Ram writer and will also perform may CP/M & MS-DOS utility functions.

C — **"C" IS FOR COMBO** and that's what you get. A super combination of both chips A and B in one chip, switchable at a great savings to you. **All Chips Include 100 Parameters FREE!** Chips A or B: **$29.95 each** Chip C: **$44.95 each.**

Circle 187 on Reader Service card.

peripheral access. Fast-40 tries to prevent this by disabling itself whenever a Load, Save or Open command is issued, either in Basic or machine language, but some programs bypass those commands and call peripherals with other routines. Fast-40 will lock up with such programs unless it's disabled before any peripheral operations are performed.

The control/X command will temporarily turn Fast-40 off while the 128 talks to peripherals, and shift/control/X will turn it back on. In Program mode, use SYS 6409 (SYS 52509 in 64 mode) to disable Fast-40, and use Fast-40's starting address, SYS 6400 (SYS 52500 in 64 mode), to turn it back on again.

Because Fast-40 is an interrupt-driven program, it can occasionally miss and not display a change from one graphics mode to another—a change from Hi-Res Graphics to Text mode, for example. This is rare and happens only in 64 mode. Once again, control/X will temporarily disable Fast-40 before a graphics change takes place.

Note that, in 128 mode, Split-Screen Graphics modes 2 and 4 are not available with Fast-40.

INTERRUPT DRIVEN

Fast-40 works by telling the C-128 to generate two raster interrupts—one at the bottom of the screen and one somewhere near the top. The bottom interrupt sets 2 MHz mode, checks for control keys and tells the VIC chip to display hi-res graphics.

For some unknown reason, hi-res graphics that are displayed at 2 MHz by the VIC chip show up as blank, light gray lines. The top raster interrupt restarts 1 MHz mode and also resets the VIC chip. R

Bret Timmins is a free-lance programmer with a particular interest in programs that extend the capabilities of Commodore computers.

Running Instructions: **Type in Listing 1 or Listing 2, as needed, and save it to disk. Run the listing you need to create the machine language file, which is then loaded with the command BLOAD "FAST-40.128" (enabled with SYS 6400) or with LOAD "FAST-40.64",8,1:NEW:SYS 52500.**

Listing 1. Fast-40 ML creator program, 128-mode version. (Available on ReRun disk. See card at page 36.)

```
0 REM THIS LISTING CREATES (AND
   SHOULD NOT BE CALLED) FAST40
  -128                    :REM*142
5 OPEN 8,8,8,"FAST40-128,P,W"
                          :REM*119
6 CT=0:PRINT"{SHFT CLR}":REM*56
10 READ A$:IF A$="-1" THEN CLOS
   E8:PRINT:PRINT"ALL DONE!":EN
   D                      :REM*129
12 PRINT"{HOME}READING LINE "+S
   TR$(CT):CT=CT+1        :REM*141
15 IF LEN(A$)<62 THEN 55
                          :REM*254
20 B$=MID$(A$,1,20)+MID$(A$,22,
   20)+MID$(A$,43,20)  :REM*242
25 FOR I=1 TO 30          :REM*181
30 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                          :REM*209
35 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55               :REM*85
40 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55              :REM*136
45 BY=H*16+L:PRINT#8,CHR$(BY);
                           :REM*67
50 NEXT:GOTO 10           :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT
   O 70                   :REM*184
60 IF LEN(A$)<42 THEN B$=LEFT$(
   A$,20)+RIGHT$(A$,(LEN(A$)-21
   )):GOTO 70             :REM*176
65 B$=LEFT$(A$,20)+MID$(A$,22,2
   0)+RIGHT$(A$,LEN(A$)-42)
                          :REM*140
70 FOR I=1 TO LEN(B$)/2:REM*221
75 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                          :REM*140
80 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55               :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55               :REM*84
90 BY=H*16+L:PRINT#8,CHR$(BY);
                          :REM*148
95 NEXT:GOTO 10           :REM*160
100 REM FAST 40 128 MODE ML
                          :REM*144
101 DATA 00194C1219A9C02CA901*2
    CA9808DDB1A6032FA00*78A9478
    D1403A9198D15         :REM*146
102 DATA 03AD10198D12D0AD11D0*2
    97F8D11D0AD1AD00901*8D1AD0A
    9FF8D19D0A902         :REM*111
103 DATA 8D11198DDA1AA9008DDB*1
    A5860D8AD19D029018D*19D0AC1
    119B9D21A8D61         :REM*147
104 DATA 19C8B9D21A8D62194C00*0
    0AD16D029EF0DD71A8D*16D0AD1
    1D029DF0DD61A          :REM*57
105 DATA 8D11D0A9008D30D0A902*8
    D1119AD10198D12D0AD*11D0297
    F8D11D04C33FF         :REM*195
106 DATA A9018D30D0AD11D00920*8
    D11D0AD16D029EF8D16*D020DC1
    AA0052CDB1A70          :REM*24
107 DATA 6B3050A5D3C904D04DA5*D
    4C940F047C928D01ACE*D81AD03
    E8CD81AAD0F19         :REM*145
108 DATA C9F2F03418AD0F196908*8
    D0F19D029C92BD01ACE*D91AD02
    08CD91AAD0F19         :REM*207
109 DATA C932F01638AD0F19E908*8
    D0F19D00BC915F01DC9*17D0034
    C7A1AA9008D11         :REM*178
110 DATA 19AD0F198D12D0AD11D0*2
    97F8D11D04CC71AA94C*8D1403A
    91A8D1503AD11          :REM*43
111 DATA D029EF8D11D0AD11D029*D
    F0DD61A8D11D0AD16D0*29EF0DD
    71A8D16D0202C         :REM*170
112 DATA 1B4CC71AAD19D029018D*1
    9D0ADDB1AC901F00CA5*D3C905D
    0E5A5D4C915D0         :REM*213
113 DATA DFA9008D30D0AD11D009*1
    08D11D0201294C33FF*A9008D3
    0D08DDA1AAD16          :REM*39
114 DATA D029EF0DD71A8D16D0AD*1
    1D029DF0DD61A09108D*11D0A9A
    A8D1403A91A8D          :REM*89
115 DATA 1503202C1B4CC71AAD19*D
    029018D19D0A5D3C905*D00CA5D
    4C917D0062012         :REM*182
116 DATA 194CC71A202C1BA9008D*D
    B1A202CC24C69FA6319*9419000
    0050500000A5D8          :REM*97
117 DATA 482920 8DD61AF010AD2D*0
    A8D18D0A50129FD0904*8501D01
    0AD2C0A8D18D0         :REM*150
118 DATA A50129FB090205D98501*6
    82980F002A9108DD71A*ADDA1AD
    016AD11D029DF         :REM*227
119 DATA 0DD61A8D11D0AD16D029*E
    F0DD71A8D16D06020DC*1AAD101
    98D12D0AD11D0         :REM*202
120 DATA 297F8D11D060  :REM*117
121 DATA -1               :REM*232
```

Listing 2. Fast-40 ML creator program, 64-mode version. (Available on ReRun disk. See card at page 36.)

```
0 REM THIS LISTING CREATES (AND
   SHOULD NOT BE CALLED) FAST40
  -64                      :REM*80
5 OPEN 8,8,8,"FAST40-64,P,W"
                          :REM*147
6 CT=0:PRINT"{SHFT CLR}":REM*56
10 READ A$:IF A$="-1" THEN CLOS
   E8:PRINT:PRINT"ALL DONE!":EN
   D                      :REM*129
12 PRINT"{HOME}READING LINE "+S
   TR$(CT):CT=CT+1        :REM*141
15 IF LEN(A$)<62 THEN 55
                          :REM*254
20 B$=MID$(A$,1,20)+MID$(A$,22,
   20)+MID$(A$,43,20)  :REM*242
25 FOR I=1 TO 30          :REM*181
30 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
```

```
                           :REM*209
35 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55                :REM*85
40 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55               :REM*136
45 BY=H*16+L:PRINT#8,CHR$(BY);
                            :REM*67
50 NEXT:GOTO 10            :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT
   O 70                    :REM*184
60 IF LEN(A$)<42 THEN B$=LEFT$(
   A$,20)+RIGHT$(A$,(LEN(A$)-21
   )):GOTO 70              :REM*176
65 B$=LEFT$(A$,20)+MID$(A$,22,2
   0)+RIGHT$(A$,LEN(A$)-42)
                           :REM*140
70 FOR I=1 TO LEN(B$)/2:REM*221
75 C$=MID$(B$,(I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
                           :REM*140
80 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55                :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55                :REM*84
90 BY=H*16+L:PRINT#8,CHR$(BY);
                           :REM*148
95 NEXT:GOTO 10            :REM*160
100 REM FAST 40 64 MODE ML
                            :REM*33
101 DATA 14CD4C26CDA9C02CA901*2
    CA98008D44CF6032FA00*A9C78D1
    803A9CE8D1903          :REM*172
102 DATA A9E68D1A03A9CE8D1B03*A
    9D88D3003A9CE8D3103*A9E08D3
    203A9CE8D3303           :REM*45
103 DATA A97F8D0DDCA9838D1403*A
    9CD8D1503AD24CD8D12*D0AD11D
    0297F8D11D0AD          :REM*253
104 DATA 1AD009018D1AD0A9FF8D*1
    9D0A9028D25CDA9008D*44CF60A
    D19D08D19D0AC           :REM*42
105 DATA 25CDB93CCF8D9ACDC8B9*3
    CCF8D9BCD4C0000A900*8D30D0A
    D16D029EF0D41          :REM*223
106 DATA CF8D16D0AD11D029DF0D*4
    0CF8D11D0A9028D25CD*AD24CD8
    D12D0AD11D029          :REM*124
107 DATA 7F8D11D04C81EAA9018D*3
    0D0AD11D029208D40CF*AD16D02
    9108D41CFAD11          :REM*118
108 DATA D009208D11D0AD16D029*E
    F8D16D0A0052C44CF70*6C3051A
    D8D02C904D04D            :REM*5
109 DATA A5C5C940F047C928D01A*C
    E42CFD03E8C42CFAD23*CDC9F2F
    03418AD23CD69          :REM*248
110 DATA 088D23CDD029C92BD01A*C
    E43CFD0208C43CFAD23*CDC932F
    01638AD23CDE9          :REM*189
111 DATA 088D23CDD00BC915F01D*C
    917D00320F4CEA9008D*25CDAD2
    3CD8D12D0AD11          :REM*132
112 DATA D0297F8D11D04C31EAA9*9
    D8D1403A9CE8D1503A9*008D1AD
    08D44CFA9FF8D          :REM*228
113 DATA 0DDCAD11D029EF8D11D0*A
    D11D029DF0D40CF8D11*D0AD16D
    029EF0D41CF8D           :REM*77
114 DATA 16D04C31EAAD44CFC901*F
    00DAD8D02C905D0EFA5*C5C915D
    0E9A9008D30D0          :REM*114
115 DATA 8D44CFAD11D009108D11*D
    02026CD4C81EA488A48*9848A59
    1C97FD00320F4          :REM*178
116 DATA CE4C4CFE85932 0F4CE4C*A
    7F420F4CE4CEDF5A5BA*F007C90
    3F00320F4CE4C           :REM*14
117 DATA 4AF3A9008D30D08D44CF*A
    D16D029EF0D41CF8D16*D0AD11D
    029DF0D40CF09          :REM*252
118 DATA 108D11D0A9298D1403A9*C
    F8D1503A9008D1AD0A9*FF8D0DD
    C60AD8D02C905            :REM*8
119 DATA D009A5C5C917D0032026*C
    D4C31EA9CCDCDCD0000*050500
                           :REM*111
120 DATA -1                :REM*233 ■
```

WIN BIG MONEY!

As seen on the NBC Today Show

The COMPLETE

Lottery TRACKER and WHEELER!™

Use Your Computer to help YOU pick the WINNING NUMBERS!

★ Record hundreds of past winning lottery numbers and dates! ★ Track as many State and International lottery games as you want . . . NO LIMIT! ★ Produce EXPERT trend charts to identify those HOT and DUE numbers! ★ Data Base Print . . . Now Store up to 300 Drawings (50% increase in storage area)! ★ Automatic FIFO (First-In . . . First-Out) Data Base Features! ★ BACK-UP and RESTORE of data base now automatic from menu! ★ Check your bets for winning combinations . . . Record ALL systems played including BONUS NUMBERS where applicable! ★ Print Charts, Statistics, Recorded Numbers, and WHEELING SYSTEMS! ★ NEW Skip and Hit Chart Included.

Choose From The Worlds Most Popular Wheeling Systems

How Have Our Customers Reacted? *. . . "I Hit 54 CASH PRIZES the first 8 weeks with the help of your program! . . . Over $2100 ahead AFTER ALL EXPENSES!" says B.C. of El Paso, Texas . . . and B.L.M. of Wilmington, Delaware says, "I won 4 cash prizes the first 2 times I used the TRACKER and WHEELER!" . . . A.A.B. of Ozark, Alabama, a member of a lottery group writes, "The COMPLETE Lottery TRACKER and WHEELER . . . has produced 48 winning tickets for a total of $10,485." These are only a few of the letters we have received from CASH winners AROUND THE WORLD!*

No other lottery software package has all of these features. When we say complete, WE MEAN COMPLETE! Easy to use MENU DRIVEN SCREENS! Printer and Color Monitor recommended but not required for use. All wheeling systems and program features now take only seconds to complete! You will LOVE this program in COLOR! Why pay up to $150.00 for less?

DON'T HESITATE . . . ORDER NOW!

Only $39.95 Plus $2.00 S&H

All Guaranteed Winning Systems!

The 50 System Lottery Wheeler . . . *Plus!*™

This software contains 50 of the worlds favorite wheels, including both Abbreviated and "Key" systems, which were not included in the original TRACKER and WHEELER program. In addition to this, The 50 SYSTEM LOTTERY WHEELER . . . PLUS! allows you to add up to 30 additional systems of your choice for 5, 6, or 7 number lottery games. If you own the Tracker & Wheeler program and fully utilize the 50 SYSTEM wheel creation facility, you will have 100 WHEELING SYSTEMS from which to choose!

We include the capability to print system combinations and you can save your bets and review them later for winning ticket combinations. If you use the 50 system program as a "stand-alone" module, you will be able to select your own numbers or have the system select numbers for you. When combined with the TRACKER and WHEELER program, you can use that program's ability to analyze and select the HOT, DUE and COMBINATION numbers. The 50 SYSTEM program comes complete with a USER'S GUIDE which provides information on bet selection methods and wheeling systems.

Easy to use MENU DRIVEN SCREENS. Printer and Color Monitor recommended but not required for use. All wheeling systems and program features now take only SECONDS to complete! You will LOVE this program in COLOR!

SPECIAL!

Only $29.95 Plus $2.00 S&H

Visa/M.C. Call Toll Free **1-800-824-7888** In Canada **1-800-544-2600**

Entertainment-On-Line,® Inc.

The PREMIERE Lottery Software and Audio Products Company

P.O. Box 553, Dept. RM, Westboro, MA 01581

© 1989 Entertainment-On-Line,® Inc. All Rights Reserved. NLPA

Circle 158 on Reader Service card.

LET'S FACE IT—MAIL ORDER HOUSES ARE *NOT* ALL THE SAME!

SOFTWARE SUPPORT INTERNATIONAL

CONVENIENCE—FAST SERVICE—RELIABILITY—SUPPORT

Abacus Software

128 Internals (book)	17.36
128 Tricks & Tips (book)	17.36
1571 Internals (book)	17.36
Anatomy of the 1541 Disk Drive	16.97
Basic Compiler 64	24.97
Basic Compiler 128	36.97
Becker Basic for Geos	33.97
Cad Pak 64	24.97
Cad Pak 128	36.97
Chart Pak 64	24.97
Chart Pak 128	24.97
Cobol 64	24.97
Cobol 128	36.97
CP/M for the C-128(book)	17.36
Fortran 64	25.97
Geos Inside & Out Book	17.36
Geos Inside & Out Disk	12.76
Geos Tricks & Tips Book	15.20
Geos Tricks & Tips Disk	12.76
Super C Compiler 64	36.97
Super C Compiler 128	36.97
Super Pascal 64	36.97
Super Pascal 128	36.97

ACCESS Software Incorporated

Echelon w/Lipstick	27.97
Heavy Metal	25.97
LB & Tourn & Exec	13.97
Mach 5	21.97
Mach 128	30.97
World Class Leader Board	24.97
W C L B Fam Courses 1	12.97
W C L B Fam Courses 2	12.97
W C L B Fam Courses 3	12.97

ACCOLADE

Apollo 18	12.97
Bubble Ghost	18.97
Card Sharks	12.97
Fast Break	18.97
Fourth & Inches	12.97
Fourth & Inches Team Const.	9.97
Grand Prix Circuit	19.97
Harrier 7	12.97
Jack Nicklaus Golf	19.97
Jack N. Course Disk #1	12.97
Mental Block	12.97
Miniputt	12.97
Power at Sea	12.97
Rack-em	18.97
Serve & Volley	18.97
Shoot Em Up Game Const	12.97
Steel Thunder	19.97
T.K.O.	18.97
Test Drive	12.97
Test Drive 2	19.97
Test Drive 2 (Data Super Cars)	12.97
Test Drive 2 (Data Scenery)	12.97
The Train	12.97

ACTIVISION ENTERTAINMENT SOFTWARE

Aliens	10.97
Apache Strike	12.97
Blackjack Academy	24.97
F-14 Tomcat	25.97
Faery Tales	30.97
Faerytale Hints	8.97
Fire Power	16.97
Last Ninja	12.97
Last Ninja II	22.97
Main Frame	25.97
Neuromancer	25.97
Neuromancer Hints	12.97
Predator	10.97
Rampage	21.97
Sky Travel	30.97
USS Ocean Ranger	12.97

BERKELEY Softworks

Desk Pak Plus*	18.97
Font Pack Plus*	18.97
Geos 64 V2.0	36.97
Geos 128 V2.0	42.97
Geocalc 64	30.97
Geocalc 128	42.97
Geochart 64	19.97
Geofile 64	30.97
Geofile 128	42.97
Geoprogrammer 64	42.97
Geopublish 64	42.97

BOX OFFICE

$100,000 Pyramid	9.97
Alf	9.97
California Raisins	15.97
High Rollers	9.97
Psycho	15.97

Broderbund Software

Arcade Game Const. Set	12.97
Bank Street Writer	30.97
Bank Street Filer	18.97
Carmen Sandiego Europe	24.97
Carmen Sandiego USA	24.97
Carmen Sandiego World	21.97
Downhill Challenge	14.97
Omniplay Basketball	22.97
Print Shop	27.97
Print Shop Companion	21.97
P S Graphics Disk 1	15.97
P S Graphics Disk 2	15.97
P S Graphics Disk 3	15.97
P S Holiday Graphics	15.97
Quest for Clues II	19.97
Quest for Clues (book)	19.97
Sim City	19.97
Star Wars	12.97

CINEMAWARE

Darkside	19.97
Defender of the Crown	21.97
Sinbad	12.97
Speedball	19.97
Rocket Ranger	23.97
Three Stooges	23.97
Warp Speed (Cart)	33.97

DATA EAST

Bad Dudes	19.97
Batman	16.97
Guerilla Wars	19.97
Ikari Warriors	18.97
Karnov	18.97
Platoon	18.97
Robo Cop	22.97
Speed Buggy	18.97
Victory Road	18.97

Datasoft

Alternate Reality City	19.36
City Hint Book	7.97
Alternate Reality Dungeon	25.48
Dungeon Hint Book	7.97
Firezone	16.30
Hunt For Red October	25.48
Time & Majik	20.97
Video Title Shop w/Comp 1	19.36

ELECTRONIC ARTS

Bard's Tale I Hints	9.97
Bard's Tale II	25.48
Bard's Tale II Hints	9.97
Bard's Tale III	25.48
Bard's Tale III Hints	9.97
Beyond the Black Hole	20.97
Caveman Ugh-lympics	19.36
Chessmaster 2100	27.47
Chuck Yeager's AFS	12.97
Deathbringer	20.97
Deathlord	12.97
Deathlord Hints	9.97
Demon Stalkers	12.97
Empire	26.97
Instant Music	12.97
Jordan vs Bird One on One	19.36
Kings of the Beach	20.97
Legacy of the Ancients	12.97
Magic Candle	26.97
Maniac Mansion	23.97
Maniac Hint Book	7.97
Mars Saga	12.97
Mars Saga Hints	10.97
Mavis Beacon Typing	25.48
Might & Magic	26.97
Might & Magic Hints	10.97
Might & Magic II	26.97
Modem Wars	22.42
PaperClip 3	31.60
PaperClip Publisher	31.30
Pegasus	12.97
Power Play Hockey	12.97
Project Firestart	20.36
Skate or Die	12.97
Skyfox II	12.97
Strike Fleet	12.97
Thud Ridge	22.97
Wasteland	12.97
Wasteland Hints	9.97
Zak McKracken	23.97
Zak Hints	11.97

EPYX

500XJ Joystick	14.95
Axe of Rage	25.97
Battleship	18.97
California Games	24.97
Create A Calendar	18.97
Destroyer	14.97
Devon Aire	19.97
Dive Bomber	12.97
Fast Load Cartridge	24.97
Final Assault	14.97
4 X 4 Racing	14.97
The Games Summer Edition	12.97
The Games Winter Edition	24.97
Graphic Scrapbook I	9.97
Graphic Scrapbook II	9.97
Home Video Producer	30.97
Impossible Mission II	14.97
L.A. Crackdown	14.97
Legend of Black Silver	24.97
Metrocross	15.97
Mind Roll	19.97
Revenge of Defender	19.97
Snow Strike	19.97
Space Station Oblivion	14.97
Sporting News Baseball	24.97
Sports-A-Roni	15.97
Street Sports Baseball	14.97
Street Sports Basketball	14.97
Street Sports Football	14.97
Street Sports Soccer	14.97
Sub Battle Simulator	14.97
Technocop	24.97
Tower Toppler	24.97

FREE SPIRIT

1541/71 Drive Align	23.97
Basic 8	26.95
Basic 8 Tool Kit	16.95
Digitalker 128	21.97
Home Designer	29.97
Home Designer Data #1 (Circuits)	9.97
How to Get the Most from Basic 8	17.97
Newsmaker 128	21.97
Sketchpad 128	21.97
Spectrum 128	25.97

GAMESTAR

Champ. Baseball	11.97
Champ. Basketball	11.97
GFL Football	12.97
Star Rank Boxing II	18.97
Take Down	18.97
Boxing I/Tennis	12.97

INFOCOM

Battletech	25.97

Inkwell Systems

Flexidraw 5.5	24.06
Flexifont	20.76
Graphics Integrator 2	20.76
Light Pen (184C)	42.97
Graphics Gallery 1	20.75
Graphics Gallery 2	20.75

MASTERTRONICS/VIRGIN

Barbarian	25.97
Double Dragon	22.42
John Elway Q.B.	19.97
Monopoly	19.97
Risk	19.97
Scrabble	21.40
Scrupples	25.48
War in Middle Earth	25.97

MICRO PROSE

3D Pool	22.97
Airborne Ranger	25.97
Destroyer Escort	25.97
Dr. Doom's Revenge	22.97
F-15 Strike Eagle	14.97
F-19 Stealth Fighter	28.97
Gunship	25.97
Pirates	28.97
Pro Soccer	22.97
Red Storm Rising	28.97
Savage	19.97

MINDSCAPE INC.

Action Fighter	19.97
Afterburner	22.97
Alien Syndrome	19.97
Arcade Megahits I	25.97
Aussie Games	19.97
Bad Street Brawler	18.97
Captain Blood	21.97
Combat Course	19.97
Crossword Magic	19.97
Gauntlett II	19.97
Gauntlet (Deeper Dungeon)	15.97
Harrier Combat Simulator	18.97
Hostage	19.97
Int. Team Sports	19.97
MISL Soccer	21.97
Outrun	22.97
Pole Position II	16.97
Road Raider	19.97
Shinobi	19.97
Space Harrier	22.97
Sports Vol. I	22.97
Sgt. Slaughter Mat Wars	19.97
Thunderblade	22.97
Uninvited	21.97

ORIGIN SYSTEMS INC.

Autoduel	33.36
Knights of Legend	31.97
Moebius	26.88
Ogre	20.40
Omega	31.97
Space Rogue	31.97
Tangled Tales	19.97
Times of Lore	25.97
Ultima 4	39.84
Ultima 5	39.84
Ultima 5 Hints	10.97
Ultima Trilogy (1-2-3)	39.97
Windwalker	25.97

PSYGNOSIS

Baal	12.97
Ballistix	19.97
Captain Fizz	19.97
Menace	12.97

SSI STRATEGIC SIMULATIONS INC

Curse of Azure Bonds	26.97
Demon's Winter	20.97
Dungeon Master Assistant	20.97
Dungeon Master Assistant II	20.97
Hillsfar (A D & D)	25.97
Hillsfar Hintbook	7.97
Heroes of the Lance	19.47
Heroes of the Lance Hints	7.97
Phantasie III	25.47
Pool of Radiance	25.47
Pool of Radiance Hints	10.95
Questron II	25.47
Typhoon of Steel	31.97
Wargame Construction Set	19.47

SHAREDATA

Card Sharks	9.95
Concentration	9.95
Concentration II	12.97
Family Feud	9.95
Jeopardy	9.95
Jeopardy II	9.95
Jeopardy Jr.	9.95
Sports Jeopardy	9.95
Wheel Of Fortune	9.95
Wheel of Fortune 2	9.95
Wheel of Fortune 3	9.95

SPRINGBOARD

Billboard Maker	24.97
Grafix Link	12.97
Icon Factory	24.97
Photo Finish	18.97
Screen F/X w/Grafix Link	21.97

SPRINGBOARD

Certificate Maker	14.97
Certificate Maker Libr.I	10.97
Newsroom	14.97
Newsroom Clipart 1 or 2 or 3	10.97
P/S Graphic Expander	23.64

subLOGIC

Flight Simulator II	31.97
Flight Sim Scenery 1	16.97
Flight Sim Scenery 2	16.97
Flight Sim Scenery 3	16.97
Flight Sim Scenery 4	16.97
Flight Sim Scenery 5	16.97
Flight Sim Scenery 6	16.97
Flight Sim Scenery 7	19.97
Flight Sim Scenery 11	19.97
Flight Sim Scenery West. Europe	19.97
Flight Sim Scenery Japan	19.97
Flight Sim Scenery SanFran	19.97
Jet v2 w/Japan Scenery	25.97
Stealth Mission	31.97

TAITO

Alcon	12.97
Arkanoid	12.97
Arkanoid II	19.97
Bubble Bobble	12.97
Operation Wolf	19.97
Qix	18.97
Sky Sharks	19.97
Rambo III	19.97
Rastan	19.97
Renegade	12.97

TIMEWORKS

Accounts Payable	33.36
Accounts Receivable	33.36
Data Manager 2	17.16
Data Manager 128	33.36
Electronic Checkbook	13.92
General Ledger	33.36
Partner 64	33.36
Partner 128	39.84
Payroll Management	33.36
Swiftcalc/Sideways 64	17.16
Swiftcalc/Sideways 128	33.36
Word Writer 4	25.97
Word Writer 128	33.36

UW UNISON WORLD INCORPORATED

Art Gallery 3	15.97
Printmaster Art 1 & 2 Combo	22.97
Printmaster Plus	21.97

MISCELLANEOUS

1943	19.97
Art Worx Bridge 5.0	21.97
Battlechess	25.97
Big Blue Reader 128 CP/M	27.97
Bob's Term Pro 64	30.97
Bob's Term Pro 128	36.97
Club Backgammon	20.40
Crossbow	21.97
CSM Newsletter Compendium	29.95
CSM Protection Manual I	24.97
CSM Protection Manual II	29.97
Doodle	24.97
Elementary Commodore (Book)	7.95
Elite Hint Book (Leroy)	6.97
F-18 Hornet	21.97
Family Tree 2.0 64/128	36.97
Font Master 2	30.97
Font Master 128	36.97
Hes Mon 64 (cart)	9.95
Hole In One Golf	19.97
Hollywood Squares	10.97
Honeymooners	19.97
IHT CAD 3D	30.97
Jackal	19.97
Life Force	19.97
Merlin Assembler 64	30.97
Merlin Assembler 128	42.97
MSD Mass Duplicator	39.95
Pocket Rockets	19.97
Rick Dangerous	25.97
Ringside Boxing	14.97
Roger Rabbit	19.97
Star Empire	14.97
Strip Poker	18.97
Pocket Rockets	19.97
Poker Data Disk 1	12.97
Poker Data Disk 2	12.97
Poker Data Disk 3	12.97
Superbase 64	25.97
Superbase 128	31.97
Superbase the Book	13.97
Superscript 64	22.95
Superscript 128	25.97
Sysres	19.95
Thunderchopper	18.97
Twin Cities C-128 Compend (Book)	14.95
Twin Cities C-128 500 Q & A	16.95
Up Periscope	18.97
Vampire's Empire	18.97
Warlock	19.97
Wizardry Trilogy	25.97
WWF Wrestling	24.95
WWF Superstars Data #1	13.97
WWF Superstars Data #2	13.97
Zero Gravity	15.97

ACCESSORIES

1541/71 Serial Cable	5.95
1541/71 Power Cable	5.95
C-128 RGB Monitor Cable (Mono)	6.95
C-64 Color Monitor Cord	5.95
Commodore 64 H/D Power Supply	39.95
Commodore 128 Power Supply	54.95
Phoenix CPS 30 C-64 Power Sup.	34.95
RS-232 Interface (Supra)	27.95
MW 350 Printer Interface	49.95
Aprospand 64	27.95
Aprospand Extender Cable	15.95
Aprotek 1200 Baud Minimodem C	59.95
Aprotek User Port Extender Cable	15.97
Comm. 1670 Modem (1200 Baud)	69.95
Commodore 1764 Ram Expander	129.95
Curtis Computer Tool Kit	24.95
Contriver M3 Mouse	37.95
Mouse Holder	5.95
Mouse Mat	8.95
Numeric Key Pad C-64	49.95
Computer Hand II	6.95
Disk Mailer	.49
1541 Dust Cover	8.95
1541 II Dust Cover	8.95
1571 Dust Cover	8.95
C-64 Dust Cover	8.95
C-64C Dust Cover	8.95
C-128 Dust Cover	8.95
C-128-D Dust Cover	13.95
Disk Notcher-Square Cut	4.95
5.25" Disk Drive Cleaner	5.95
10 Cnt Disk Storage	1.95
50 Cnt Disk Storage	8.95
100 Cnt Disk Storage w/Lock	12.95
80 Cnt 3.5" Disk Stor. w/Lock	9.95
5.25" Disk Labels-96 cnt	1.00
5.25" DS/DD Diskettes-Black	.39
5.25" DS/DD Disks-10 colors	each .79
Write Protects-100 cnt Black	1.00
Tyvek Sleeves-High Quality	ea .09
Slik Stik-Joystick	6.95
Tac 2-Joystick	10.95
Tac 3-Joystick	11.95
Touch-It Static Strip	8.95
Suncom Icon Troller	17.95
Surge Protector/Power Pad	39.95

COMMODORE 64/128 COMMODORE 64/128 COMMODORE 64/128 COMMODORE 64/128 COMMODORE 64/128 COMMODORE 64/128

THE RAMBOard

Beyond Super

RAMBOard does just what the other copy card on the market does: it adds RAM to your 1541 disk drive. This RAM is used to create a workspace where custom software can work its magic. Copy protection is evolving past the point of nibblers and other software-only solutions. Believe us, card based copiers are the future of archival technology.

So how do you decide between our card and "Brand X"? Don't compare the similarities - compare the differences. Their card is just "out there". You buy it, and that's pretty much it. RAMBOard was designed from the very beginning as an integral component in Maverick™, a complete system of archival tools and products. Their card puts the burden of the work on you. Are you good at soldering? You better be - their card REQUIRES it. On the other hand RAMBOards require NO soldering to install, the only exception being a handful of older 1541C's. That's not all - the other guys say they don't use parameters, but what they really mean is they don't WRITE parameters. The user is required to make special critical "copy adjustments" to copy software. Sounds like creating parameters to us. On the other hand, RAMBOard uses Maverick parameters, designed by experts to instantly and easily copy today's toughest titles. So when the other guys say that their card will copy "everything", that may be true - providing that you can figure out the proper "copy adjustment" settings for everything. Good luck!

The differences go beyond the product itself. Software Support International is the company that began with the award winning Kracker Jax series of archival parameters. Our customer support system has earned industry praise, and we've established a reputation for honesty and integrity. A close look at the track record of the other guys will show just how deep our differences run. So when you're ready to get involved with the future of archival technology, pick RAMBOard - a product you can trust, from a company you can trust.

The RAMBOard

1541/1541C Version: $34.95

NEW **1541 II Version: $44.95**

1571 Version: $49.95

ATTN. C-128D Owners — The 1571 RAMBOard is for external drives only.

The RAMBOard is an optional Maverick accessory

THE 1750 CLONE

Are You Overdrawn At The Memory Bank?

Ah, the venerable Commodore 64/128. Stock, it has better sound than an Atari ST. Better graphics than a CGA equipped IBM. And more memory than....

Uh-oh.

As powerful as the Commodore is, memory has always been its weak spot. Some brilliant programmers have found some ingenious ways to work within the computer's very limited available RAM, but the fact remains that you can only go so far with 64 or even 128K. But you can go MUCH further with 512K.

The bad news is that Commodore's own 1750 512K RAM Expansion Unit (REU) is expensive and almost impossible to find. The good news is, we did something about it.

We bought brand new Commodore 1764 REU's, which come with only 256K of RAM. Next, we installed a 256K upgrade which was custom engineered to our demanding specifications. Once modified, we tested each and every unit and warranted them to be free from defects. The final product is called the 1750 Clone, and it's all the room you'll ever need on a simple plug in cartridge.

Once on board, you'll have a whopping 512K of RAM - the SAME amount of memory found on the Amiga 500. Your Commodore will operate at advanced levels of performance that the original designers never even dreamed of! You'll be amazed at the enhanced capabilities of software that takes advantage of the 1750 Clone, programs like GEOS, PaperClip III, and our own Maverick, to name a few.

The 1750 Clone works EXACTLY like the original 1750. It will open the door on years of extended use from your Commodore as even newer, more powerful software appears on the horizon, software that requires the room the 1750 Clone can provide.

Twin Cities 128 magazine says they "can completely recommend the 1750 Clone." Once you see it work, you'll feel the same way. So don't buy a whole new computer just to get more memory. Get the 1750 Clone instead -and get another decade of satisfaction from your Commodore.

IMPORTANT NOTES - READ CAREFULLY

C-64/64c (but NOT C128/128D) owners MUST buy a heavy-duty power supply to use these units. The power supply is NOT included - it is available from us separately. If you ALREADY own a 1764 RAM cartridge, we can upgrade it for you. Your unit MUST be in perfect working order for us to upgrade it. The turnaround time on upgrades is approx. 2 weeks. It will NOT be necessary for you to purchase a new power supply - the one that came with your 1764 will still work fine.

THE 1750 CLONE ONLY $199.95

1764 UPGRADE ONLY $124.95

ALL NEW

FasTrac/128 by Mike J. Henry

Look Who's Come Out Of The Basement

At Software Support International, we've gained a reputation for providing Commodore owners with the products they need to get the most out of their computers. We've never hesitated to do whatever it took to provide you with the best software on the market. So when we decided to produce the ultimate 128 utility system, we went looking for one of the ultimate programmers.

We found him.

Mike J. Henry, the brilliant young programmer who was the driving force behind the "Basement Boys", the software team that created the phenomenal Fast Hack 'Em, has turned his considerable talents onto the 128. The result: FasTrac/128, the TOTAL utility system for your 128.

Here's a list of the major features found in FasTrac/128. ALL use both 40 and 80 column outputs and are PAL compatible for our overseas users. Read carefully -FasTrac/128 does some truly amazing things:

- **FasTrac/128 Disk Copy:** Single or dual drive / Copy with or without verify / Copy in 1541, 1581, or true 1571 formats / 1764-1750 RAM expansion support / 64K video RAM support / Uses the 128's additional memory.
- **FasTrac/128 File Copy:** Single or dual drive / File Copy between ANY two Commodore compatable Drives including the SFD-1001, MSD drives, hard drives, and others / Copy in 1541 or true 1571 formats / 1581 file copy with partition support / 1764-1750 RAM expansion support / 64K video RAM support / Uses the 128's additional memory.
- **FasTrac/128 M/L Monitor:** Go ANYwhere in memory / Access both main banks / Full scrolling in both directions / Includes scrolling DriveMon.
- **FasTrac/128 Directory Editor:** Edit and organize ANY standard directory / Edit 1541 or true 1571 formats / Edit 1581 directories with full partition support.
- **FasTrac/128 IBM™/MFM Disk Copier:** Copy standard IBM formatted 360K 5.25" disks with your 1571 drive (required) / 1764-1750 RAM expansion support / 64K video RAM support / Uses the 128's extra memory to copy in fewer passes.
- **FasTrac/128 1581 Duplicator:** Single or dual drive / 1764-1750 RAM expansion support / 64K video RAM support / Uses the 128's additional memory / This is the fastest 1581 to 1581 copier ever created!

Quite a package, eh? We don't want to mislead you - FasTrac/128 is NOT for copying protected software. Our own Maverick™ already has those bases more than covered. FasTrac/128 was designed to allow serious 128 users to get total control of their computers.

If you want to own the finest set of utilities ever made for the Commodore 128, we've just made it a lot easier - we've told you the name . . .

Mike J. Henry's FasTrac/128

Only $34.95

ATTN. REGISTERED Maverick Owners ONLY: You may buy ONE (1) copy of FasTrac/128 for only $20.00

This offer is ONLY for orders placed with Software Support.

ALL NEW

THE 1581 TOOLKIT V2

If You've Been Waiting For A Sign, This Is It.

Introducing the 1581 Toolkit Version 2, the newest incarnation of the best program you can buy for your 1581 disk drive. How good is it? Well, V1 received 4 1/2 of a possible 5 stars from INFO™ magazine - and V2 is even better. What can it do for you? Picture using your 1581 with a:

- ★ **Fast Disk Copier**
- ★ **Fast File Copier**
- ★ **Byte Pattern Search**
- ★ **Partition Creator**
- ★ **Ultrafast Formatter**
- ★ **Track & Sector Editor**
- ★ **Directory Editor**
- ★ **Error Scanner**
- ★ **Relocatable Fast Loader**
- ★ **File Track & Sector Tracer**

And V2 adds many new or enhanced features, like the fact that both our single drive fast data copier and fast file copier now support the 1764/1750 RAM expansion units for super-fast one pass copies, or like our 64k video RAM support for 128 owners! And remember also that all of our 1581 Toolkit utilities use hyperfast read/write routines and, wherever appropriate, allow full access to partitions.

So whether you're thinking about buying a 1581 drive or you already own a 1581 drive, we guarantee you'll never really USE a 1581 drive until you've got your hands on the 1581 Toolkit.

NEW LOW PRICE:

THE 1581 TOOLKIT (3.5 disk) . . . . . . NOW ONLY $24.95!

VERSION 1 OWNERS: Upgrade to V2 by Sending us your Original Toolkit V1 disk along with $9.95 plus S/H

Ever wish you knew more about your 1581? David Martin's book, "The 1581 DOS Reference Guide", is what you've been wishing for. Martin's invaluable resource holds over 100 pages of detailed information that took over a year of solid research to compile. This exhaustive manual will show you the inner workings of the 1581 as nothing else can. Order now, and we'll include some additional utilities like a machine language monitor with DriveMon - the perfect companion to The 1581 DOS Reference Guide!

THE 1581 DOS REFERENCE GUIDE / $14.95

SPECIAL OFFER: GET BOTH THE 1581 REFERENCE GUIDE AND THE 1581 TOOLKIT FOR ONLY $34.95

C-128 VIDEO RAM UPGRADES

For 128 Owners Who Refuse To Be Left Behind

When Commodore first released the new 128D, we got one, opened it up, and took a good look. It didn't take long to discover one MAJOR difference. The standard C-128 has just 16K of video RAM, while the newer 128D has 64K: 400% more! We knew that there were tremendous advantages to the extra RAM. Like being able to scroll through video memory or the potential for greatly enhanced color resolution. And, since Commodore had seen fit to make it a standard feature on all new 128D's, we knew it was only a matter of time before new software started taking advantage of the full 64K.

That time has arrived. Programs like BASIC 8, the BASIC 8 Toolkit, Spectrum 128, Sketchpad 128, and News Maker 128 have all been coded to utilize the full 64K of video RAM found on the 128D's. So if you've got a regular C-128 with only 16K of video RAM, you've got a problem. And we've got the solution.

You could upgrade on your own - but if thoughts of splattered solder and heat-damaged motherboards bother you, relax: we've developed a module that just plugs right in to your C- 128. No soldering, no hassles. Now your computer can have the same 64K video RAM as the new machines. And you'll be ready for whatever the future holds.

PLUG-IN 64K VIDEO RAM UPGRADE FOR C-128's

ONLY $49.95

Includes easy installation instructions

NEW LOW PRICE

KRACKER JAX VOLUMES 1-7

We Just Made A Good Thing Better - Without Lifting A Finger.

Kracker Jax, our ground breaking series of copy parameters, was always a superior product. When we made it, we made it right. So how can we improve it now? Easy. We slashed the price!

Each Volume of Kracker Jax allows you to make Unprotected versions of around 100 specific popular titles. No special knowledge or tools are required. Each Volume originally sold for $19.95. So if you wanted all 7 Volumes, it would have cost you $139.65. But now, you can buy each Volume for only $9.95 or, for you bargain hunters, you can buy **ALL 7 VOLUMES FOR ONLY $29.95!** That works out to a cost of only **$4.28** each!

We've also cut the price on The Shotgun II, one of the most powerful nibblers ever produced. Originally $14.95, you can now own it for only **$9.95!**

And just because there's a remote chance that it might be your birthday, we'll go one step further: Buy the Kracker Jax Volume 1 -7 package for **$29.95,** and we'll throw in The Shotgun II nibbler **FREE!** Quite a deal, huh? But if you want it, better hurry - supplies are limited. After all, nothing good lasts forever.

SOFTWARE SUPPORT INTERNATIONAL

PLEASE READ BEFORE ORDERING: We accept money orders, certified checks, VISA, M/C and, Discover. Previous Software Support customers may use C.O.D. and personal checks. Orders shipped to U.S.A. (48 states), F.P.O., A.P.O., or possessions, please add $3.50 per order for S & H. U.S. shipping is by UPS ground in most cases. FAST 2nd DAY AIR available: add $1.00 per pound additional (U.S. 48 states only). Alaska or Hawaii (all orders shipped 2nd day air), please add $7.50 per order for S & H. C.O.D. available to U.S. customers only (50 states): add $2.75 along with your S & H charges per order. Canadian customers may calculate the S & H charges by including $4.00 (minimum charge) for the first two pieces of SOFTWARE and $1.00 for each additional piece per shipment. All monies must be submitted in U.S. funds. Canadians must call or write for hardware shipping charges. Foreign customers must call or write for shipping charges. Defective items are replaced at no charge if sent postpaid. All in stock orders are processed within 24 hours. U.S. SOFTWARE orders over $100 will be shipped 2nd Day Air at our regular $3.50 S & H charge (48 states only). Washington residents please add 7.6% additional for Sales Tax. All prices subject to change. All sales are final unless authorized by management.

Mail your order to: Software Support, Int.
2700 NE Andresen Road / Vancouver, WA 98661

Or call our toll-free order line at 1-800-356-1179, 6am-5pm Monday-Friday Pacific time
Technical support available. Call (206) 695-9648, 9am-5pm — Pacific time, Monday-Friday.
Orders Outside USA call (206) 695-1393.

VISA MasterCard DISCOVER

Circle 17 on Reader Service card.

DEALERS — WE HAVE THE SUPPORT YOU'RE LOOKING FOR!

GOLD MINE

Here are this month's gaming nuggets from fellow readers all around the world.

By LOUIS F. SANDER

AIRBORNE RANGER: If a high-ranking ranger dies on a difficult mission, you'll be directed to insert your Ranger Disk. Take out your original, turn off your computer, then reboot the program. Your ranger will be the same rank he was at the start of the previous game.

—JEFF OWENS
F. E. WARREN AFB, WY

ARKANOID: To get free capsules, press the space bar to pause the game, then type "dsi magic" (no quotes) and press the space bar again. Now type these letters for the capsules: E to enlarge the pad; P to get an extra life; L to get more firepower; B to get wavy lines (enter them to advance to the next scene); F to advance to the final stage; D to get three balls; and C to make the ball stick to your pad until you click the mouse.

—LUCY S. TERRIER
ALTON, IL

BATMAN: To play this game, you need certain items at certain places to progress. Here are some of the more important items, and what they do.

While fighting the Penguin: False Nose lets you walk around for a while without being recognized; Lock Pick lets you into the factory by the roof; Door Key lets you enter doors in the office factory; Lift Key lets you use the elevator; Rope lets you climb up to a secret office (use it in the room with the hole in the ceiling); Dart gives you a door pass when you throw it at the dart board; Door Pass admits you to the Penguin's house; and Tools fix the computer.

When fighting the Joker: Light Bulb illuminates the dark room; Gas Mask lets you breathe while walking in the sewers; Flashlight lets you see while in the sewers; False Teeth let you eat the Fish, the Coconut and the Coke; Wire Cutters defuse all the bombs in the sewers; and Money lets you play the slot machine to get the Joker card.

—JOE QUINN
APO, NY

BATTLETECH: Save your game right before the eighth training mission.

Select a Chameleon for the 'Mech to use. As soon as you start out, run (and I do mean run) southeast, using jump-jets over rough ground when needed. You'll see why shortly. When you get to the south wall, look for the hole, run south through it, then run west alongside the wall. You'll evade the Jenners and keep the Chameleon.

Don't let any of your good 'Mechs get hit in the back, because the armor back there is very thin. When it's pierced, the 'Mechs' gyros, engines, heat sinks and all the other sensitive stuff get fried. You can never replace gyros, engines or sensors. You can get another 'Mech, but only a Wasp, Locust, Stinger or Spider. Chameleons and Commando 'Mechs are one of a kind.

—JESSE MACNISH
TUCSON, AZ

DOUBLE DRAGON: On the second level, you can get by the first group of thugs by ignoring them.

To get past the second group of thugs, get on top of the beams and wait for the two guys to come at you. When they do, go back to the starting point of the current level, then return. You will be allowed to pass.

When you use a weapon against the enemy, keep your button depressed. Instead of swinging once, your weapon will swing twice.

—CHRIS BARRANTES
HADLEY, NY

F-14 TOMCAT: When you get a mission requiring you to fire only when fired upon, get a Sidewinder lock on the enemy group leader. (You may have to try several before getting the right one.) Ask him to leave when he gets a lock on you. If he drops his lock immediately, you're home free! Otherwise, the enemy will fire at you at point-blank range. The only way to avoid disaster here is to climb at full afterburner, or if you're at 60,000 feet to dive like a submarine. This will break the enemy's lock on you. When that happens, you can continue to evade them while asking them (politely) to leave.

—HARRO PENK
WAPPINGERS FALLS, NY

FAST BREAK: The most effective way to move the ball upcourt is by passing instead of dribbling. As soon as one of your players grabs a defensive rebound, have him pass the ball to a teammate, even if the latter appears to be well covered.

More often than not, this quick pass strategy will lead to a fast break and an easy basket for your team at the other end of the court.

—JAMES BRIGLEY
WORCESTER, MA

THE GAMES: SUMMER EDITION: Here's how to win at the Velodrome: Start out fast and get the lead. Let your opponent cross behind you, but don't let him pass. When you get to the last curve, speed for the finish.

—DENNY VERHOFF
OTTAWA, OH

GRAND PRIX CIRCUIT: On level one, your car can't be destroyed. So rather than slow down on the hairpins, turn into the grass at the 50-yard mark. With practice, you should end up on the pavement, still moving at 100 mph+.

—JASON SMITH
AVON PARK, FL

HEAVY METAL: In the tank scenario, incoming fire makes two different sounds: a shrill whistle and a low roar. The roar is from the rockets that come from the rocket launchers. These are your deadliest enemies, and should be eliminated as quickly as possible.

I've found it impossible to escape when that low roar comes in, but I've also found a way out of trouble. When the roar comes, hit the run-stop key to ►

ALL NEW

MAVERICK™ V4

PLEASE Don't Call Us The Best Copy Utility On The Market!

We've always been known as the best Commodore copy utility made. But that label just doesn't fit us anymore. Because Maverick is so much more than just a copy utility. Over its life span, Maverick has evolved into a total software management system capable of extending the abilities of your Commodore computer well beyond its original capacity.

Maverick V4 continues the evolutionary process that is transforming our original copy program into a series of dedicated modules, each component created by a master programmer, each designed to deal with a specialized task. The result is a program that creates an entire software management environment of which backing up protected software is only one part. Software Support, the company that has always pushed the Commodore further that it was ever designed to go, is proud to present Maverick V4. We've added several important new features and many dramatic enhancements to the Maverick platform. For example:

- RAMBOard™ NYBBLER: A MAJOR leap forward in protected backup capabilities, our exclusive new nybbler works with our own RAMBOard to AUTOMATICALLY shred some of the toughest protection schemes ever created! This combination of ingenious hardware and superb new software can handle many protection schemes that are untouchable with conventional nybblers alone.
- RAMBOard GCR TRACK EDITOR: This new feature, found ONLY in Maverick V4, works with RAMBOard to allow you to read, write, and even edit whole tracks at a time!
- 1581 SINGLE OR DUAL DRIVE FAST DATA COPIER: Now backup your data disks faster than ever before with your 1581 drive! 1764/1750 RAM expansion and 64K video RAM are supported!
- FILE, TRACK, & SECTOR TRACER: Identify, view, and edit any sector in any program file-fast!
- HIGH SPEED SEQUENTIAL FILE VIEWERS: Now you can view or print sequential files WITHOUT having to load the application that created those files! For example, view PaperClip™ files without waiting for PaperClip to load. File Viewers are the current rage in the IBM world -Software Support brings this advanced feature to your Commodore with the new Maverick V4!
- ENHANCED DIRECTORY EDITOR: Works with the 1541, the 1571, and now supports the 1581 disk drive! The ultimate tool for organizing your disks!
- ENHANCED TRACK & SECTOR EDITOR: Works with the 1541, the 1571 (in true double sided format), and now supports the 1581 disk drive!
- ENHANCED SECTOR MAP EDITOR: Now supports the true double sided format of the 1571 disk drive!
- ENHANCED PARAMETER MENU: Now supports two drives!
- ENHANCED BYTE PATTERN SCANNER: Perform high speed searches on 1541 disks and, now with true double sided format support, 1571 disks.
- MORE ALL-NEW PARAMETERS: Maverick V4 now includes over 450 parameters that either copy or entirely break the potentially destructive protection schemes of the world's newest and finest programs! Our parameters have always been the strongest on the market but, with our exclusive RAMBOard support, now they're more powerful than ever!

A turntable is just one component of a complete stereo system. And a copier, even the best one made, is just one module of a complete software management system. From this point on, we won't settle for just being known as having the best copier on the market. Once you see Maverick V4, you'll understand why.

THE NEW MAVERICK V4 -ONLY $34.95

NOW INCLUDES PARAMETER MODULES 1-7

Maverick V4 is available from Software Support International: Products That Work - From A Company That Cares

ALL NEW

ADDITIONAL MAVERICK V4 FEATURES

- REU support in Maverick's major modules
- 64K video RAM support in many modules
- Automatic directory recovery utility for damaged disks
- GEOS™ 2.0 64/128 1581 boot disk transfer utility
- 1541/1571/1581 fast file copier -any direction
- State of the art single or dual drive GCR nybbler
- GCR editor for the experienced hacker
- GEOS™ Parameters & Tools module
- GEOS™ desktop accessible file copier
- GEOS™ desktop accessible sector editor
- Error scanner with unique sector editor
- Single or dual drive high speed data copier
- Scrolling M/L monitor with DriveMon
- Works with ALL Commodore 64/128 computers in the 64 mode
- Extensive documentation included - over 40 pages.
- AND OUR FAMOUS SSI EXPERT TECHNICAL SUPPORT!

Attention Registered Maverick Owners: You may upgrade to the new V4

$9.95

Parameter Module #7 is also available

$9.95

(Includes Modules 2 through 7)

PLEASE NOTE: Many features now require the use of RAMBOard Available seperately from Software Support International

---

WELCOME TO HACK U

A School Of Higher Learning For A Select Few.

Welcome. This is a different kind of school. Here, we will teach you about power. The power of knowledge. The power of mastering a very specialized discipline. And the power of the Commodore 64/128.

Not everyone can qualify to enter Hack U. You've got to be self-motivated - we're certainly not going to come to your house and hold your hand. You've got to be driven - mastering the Commodore can be a long journey, and is not recommended for the faint of spirit. And you've got to be intelligent - but your intellect must be tempered with equal doses of creativity and patience.

Think you qualify? Good. Not many do. But there is one more thing you need to bring with you. Curiosity. Overwhelming, insatiable curiosity. Because that's the fuel we'll use to power you on this journey.
If you're among the few to still be with us, congratulations. This is where your journey begins. The combined experiences of those who came before you are here, available for you to use whenever you're ready. All it takes is making the first step.

NEW

★ THE CSM NEWSLETTER COMPENDIUM / $29.95

From 1984 to 1986, the Golden Years of Commodore hacking, the CSM Newsletters were THE best source of inside information on the complex world of copy protection. This compendium provides you with the very best tips, tricks, hardware modifications and expert copy protection cracking techniques! If you're hungry for knowledge, this is a great source, and highly recomended by the Kracker Jax team.

★ THE CSM PROGRAM PROTECTION MANUAL VOL I / $24.95

The CSM books are the logical starting place to begin your higher education in copy protection. CSM, the original central clearing house of specialized info for hackers, put their best knowledge into these two books. Volume I provides an overview of copy protection issues and provides you with a foundation of information to begin building on.

★ THE CSM PROGRAM PROTECTION MANUAL VOL II / $29.95

Volume II begins where Volume I left off. It covers the evolution of copy protection schemes; autoboots; interrupts & resets; compilers; undocumented opcodes; encrypted programs; machine language; GCR data recording & reading; custom DOS routines like half-tracks, extras sectors, & modified formats; decryption & decoding techniques, and much more! This is a MUST READ for all serious Commodore users.

★ KRACKER JAX REVEALED: VOLUMES I, II, & III / $23.50 Per Volume

No serious hacker can be unfamiliar with the Kracker Jax name. The experts who created the award winning series of deprotection parameters were brought together to create a graduate course of inside information for the truly serious student of hacking. This is not an easy course - we strongly recommend that you don't even try the Revealed books until you study (or have experience equivalent to) the information in the CSM materials described above. But once you're ready, you'll find the Kracker Jax Revealed books to be the final step on the path to copy protection mastery.

KRACKER JAX REVEALED Book I

Uses 20 specific tutorials to introduce you to the unique concepts used by the Kracker Jax team. Includes a ML monitor, sector editor, error scanner, reset switch, & more.

KRACKER JAX REVEALED Book II

Gives you 20 more examples, and also reveals the secrets of the famous Rapidlok™ copy protection system! Includes the legendary HesMon™ machine language monitor cartridge at NO ADDITIONAL CHARGE!

KRACKER JAX REVEALED Book III

Is the final book in the Revealed series. Here, the student becomes the master as we show you how to create your own copy protection schemes, including one that can NOT be copied by any nibbler currently on the market! This book takes you deep inside the 1541 itself, where the new breed of ultra tough protection lives. Order now & get our famous $19.95 Hacker's Utility Kit software package FREE!

SOFTWARE
SUPPORT
INTERNATIONAL

Circle 17 on Reader Service card.

PLEASE READ BEFORE ORDERING: We accept money orders, certified checks, VISA, M C and, Discover. Previous Software Support customers may use C.O.D. and personal checks. Orders shipped to U.S.A. (48 states), F.P.O., A.P.O., or possessions, please add $3.50 per order for S & H. U.S. shipping is by UPS ground in most cases. FAST 2nd DAY AIR available: add $1.00 per pound additional (U.S. 48 states only). Alaska or Hawaii (all orders shipped 2nd day air), please add $7.50 per order for S & H. C.O.D. available to U.S. customers only (50 states): add $2.75 along with your S & H charges per order. Canadian customers may calculate the S & H charges by including $4.00 (minimum charge) for the first two pieces of SOFTWARE and $1.00 for each additional piece per shipment. All monies must be submitted in U.S. funds. Canadians must call or write for hardware shipping charges. Foreign customers must call or write for shipping charges. Defective items are replaced at no charge if sent postpaid. All in stock orders are processed within 24 hours. U.S. SOFTWARE orders over $100 will be shipped 2nd Day Air at our regular $3.50 S & H charge (48 states only). Washington residents please add 7.6% additional for Sales Tax. All prices subject to change. All sales are final unless authorized by management.

Mail your order to: Software Support, Int.
2700 NE Andresen Road / Vancouver, WA 98661

Or call our toll-free order line at 1-800-356-1179, 6am-5pm Monday-Friday Pacific time
Technical support available. Call (206) 695-9648, 9am-5pm — Pacific time, Monday-Friday.
Orders Outside USA call (206) 695-1393.

VISA
MasterCard
DISCOVER

DEALERS — WE HAVE THE SUPPORT YOU'RE LOOKING FOR!

exit the tank, then re-select that unit. You'll start over from where you left off!

You can use the same trick when you have lots of one type of tank shell but none of another. When you exit and return, the computer will average out your ammo among all three types of shells.

—ZACH MESTON
LAHAINA, HI

HILLSFAR: When riding the horse at its fastest speed, you'll usually be able to jump any obstacle. A rumor in Hillsfar says that birds are scared of fast horses. So far, no birds have come my way.

When you get directions at your guild, read and remember them carefully. They won't be repeated.

If you're searching after you've broken into a building, you can get a message that the exit can now be found. This also means that the guards are searching for you. You can stun the guards and slow them down by walking over a little white object.

—STEPHEN S. GUY
STERLING, VA

IMPOSSIBLE MISSION II: When you're on a lift at the bottom of the screen, always push down on your joystick to see if it will take you to another room.

Don't hesitate to use your Snooze-bombs unless you haven't yet gotten the music for the tower.

There are certain rooms where it seems impossible to get to another level. Sometimes blowing up a robot makes it easier to get where you'd like to go.

—BRIAN METCALF
SANDY HOOK, CT

JORDAN VS. BIRD: To get high scores in the three-pointer contest, you must time how long you hold the button. Press it, then let it go just as your opponent brings the ball up into shooting position. You can get a score of 30 by doing this, although I always seem to miss one or two!

The easiest dunks to get high scores on are Statue of Liberty, Windmill, and Dr. J. Jam.

—ADAM WILSON
HOLLIS, NY

LAST NINJA 2: To get out of Central Park, you must first climb the fence, which is after the juggler. While you're up there, get the pole. Now get the hamburger and search in both ladies' restrooms.

Go into the gate, use the key, jump the boat, go north and jump onto the island. There you must take the pole and push the boat. Now go back to the bee screen and go west. When the boat floats across, jump on, then off to the street.

To get the sword in the street, kick the door that flashes. Kill the enemy and the sword is yours.

To kill the alligator in the sewers, light the bottle on the torch. Throw it at the big reptile, and you get roast 'gator!

To get past the dog in the basement, get the chicken and dip it in garbage. When it turns green, give it to the dog. Now put the credit card in the slot and go to the office.

Use the sword in most attacks. Other than the star, it is your most powerful weapon.

—ERNIE DEAKYNE
UPPER MONTCLAIR, NJ

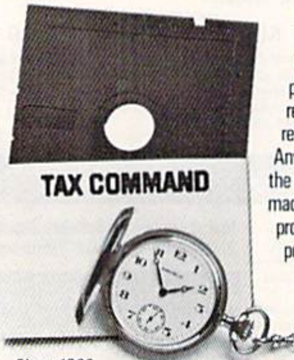
MONOPOLY: When you're playing against the computer, here's a way to get property cheaper than the retail price. It might also work against human beings.

The secret is to keep track of the amount of money the computer has. When you land on a property that is too expensive for the computer, press No, indicating that you don't want to buy the property. That will start an auction for the property, and the computer will never bid more money than it has at the moment.

If you bid a little more money than the computer has, you'll be able to buy the property. It works.

—APRIL HIEB
FARGO, ND

OUT RUN: If you're going at full speed, and you encounter three cars blocking all three lanes, try passing them on the side of the road. If there's nothing com-



TAX COMMAND©

RUN
REVIEW SAYS

"...contains more forms and schedules than the other programs. It's generally a more professional program, combining completeness and speed."

"The program switches quickly between forms and schedules ...doesn't force you to save data and makes subtotal and tax calculations automatically."

*March **RUN**, 1989*

Since 1982

Time Saving • Easy-To-Use • Powerful • Affordable • Guaranteed

RUN says, "This program is suited to the professional tax preparer for completing most returns and quickly checking previously prepared returns." Tax Command is all menu operated. Anything you put in can be easily changed with the help of the built-in calculator. Tabulations are made automatically and schedule totals fed to the proper line on other schedules. You can save data, print for record-keeping or directly on IRS forms. Forms covered include: 1040, Schedules A thru F (incl. new D1), R, SE, Forms 2106, 2119, 2441, 3903, 8615 and estimated tax worksheets. New for 1989 are forms 4562 (Depreciation), 6251 (alternative minimum tax) and the ability to use a 1764 RAM cartridge. Yet despite Tax Command's power and completeness, **90% of users recently surveyed listed EASE OF USE as the primary reason for using Tax Command year after year.**

OUR GUARANTEE: Return for a refund if not satisfied. **Tax Command 1989 — $59.95** Shipping/Handling (US - $2. Foreign air - $3.95) Specify Commodore 64 or 128. Wisconsin residents add 5% sales tax.

Send Check or Credit Card information to: Practical Programs Inc., PO Box 93104, Milwaukee, Wisconsin 53203. Phone orders, CALL:

1-800-776-7047

Users get ½ price annual updates, even if they switch to a PC.

Circle 11 on Reader Service card.

ing, it's just as effective as passing on the pavement!

—GEOFF HOLLAND
NORRIS CITY, IL

RED STORM RISING: When a torpedo is homing on you, increase speed to over 20 knots and make a hard turn. Left is usually best.

If you're being chased by more than one torpedo, try to release a noisemaker and make a turn around it. It's also useful to change your depth. If you are deep, go above the thermal layer. If shallow, go below the thermal layer and continue the turn. You can also release a decoy while in the turn.

When you're going after subs, try to get the first one with a torpedo before attacking the others. You can then use Sealance torpedoes on the remaining subs. It will keep them busy, and the Sealance has a very good chance of making a kill. Increase your speed when using active sonar, since the other subs will fire torpedoes at you.

As soon as you damage a warship with a missile, go after the other ships. When they're sunk, finish off the damaged ship with a torpedo.

—ROBERT L. WILLSEY
MARTHA, OK

ROCKET RANGER: Remember that one fuel base is located in the jungle, and the other is located in the desert. Have an agent search in South America (where there is jungle) and another search in countries with deserts.

When you find a base, organize resistance in that country. The resistance will raid the base and begin sending you loads of Lunarium.

—ALEJANDRO DIAZ
SAN JOSE, COSTA RICA

STEALTH MISSION: If you want more air opposition, let out your landing gear and land at an enemy base. Believe me, that will shock them into launching their planes.

Do this if you can't get a lock on the enemy because of your position: Switch to Map mode and zoom above 16×. If the target doesn't appear, you're still not close enough. When the red target sign does appear, press L if your sight is in the rectangle. Fire your missile when ready. When flying the ancient ruins, it is easier to track targets in the ravine if you're in Map mode.

—ANDRE STRAKER-PAYNE
ST. MICHAEL, BARBADOS

WHERE IN THE U.S.A. IS CARMEN SANDIEGO?: You can save valuable time by writing down four or five clues about your suspect before you use the Crime Computer.

Before investigating further, always read the information given about the state you are in. It reveals many important clues that can't be found anywhere else.

By the way, you must solve a total of 36 cases before you can capture Carmen and get yourself into the Acme Hall of Fame.

—DEBBIE GODFREY
ADDRESS UNKNOWN

ZAK MCKRACKEN: When you run out of oxygen on Mars, run to your spacevan and say "use oxygen valve." In a few seconds, you'll have an hour's supply of oxygen.

To unite the two halves of the yellow crystal, go to the Stone Henge in London and take the earth girl with you. Place the flagpole (gotten from Nepal prison) in the altar. Give the scroll (gotten from Lima) to the girl. Place the two halves of the yellow crystal on the altar and have the girl read the scroll. Boom! Watch out!

—MARC SKINNER
QUITO, ECUADOR ■

To submit your own C-64 or C-128 game tips for consideration, send them to Gold Mine, PO Box 101011, Pittsburgh, PA 15237. RUN *will pay $5 per submission upon publication.*

Submit all your tips on standard 8½-by-11 sheets of paper. Type or write legibly, and be sure to include your full name and address on each sheet.

Use separate sheets for each game, and combine all tips for one game on the same sheet. At the top of the sheet, clearly indicate the game your tip(s) apply to and the type of machine you run it on.

VSI

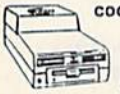
1-800-544-7638
Inquiries & Oregon buyers
1-503-246-0924

SCHOOLS
OUR
SPECIALTY

CABLES, 5 YEAR REPLACEMENT GUARANTEE

5 Pin, M M, 6 ft	M M B56MM	$5.95	M F B56MF	$5.95
5 Pin, monitor	2 RCA M652	$4.95	3 RCA M653	$5.95
6 Pin, M M	6 ft B66	$5.95	9 ft B69	$7.95
6 Pin, M M	18 ft B618	$12.95	36 ft B636	$19.95
6 Pin, M F			6 ft A66	$5.95
8 Pin, monitor	2 RCA M382	$4.95	5 RCA M385	$5.95
DB9, Joystick M F			12 ft JS12	$4.95
DB9, Y cable			1F 2M JSY	$4.95
DB9, 6 ft	M M DB9MM	$7.95	M F DB9MF	$7.95
DB25, M M	3 ft R3MM	$7.95	6 ft R6MM	$8.95
DB25, M M			10 ft R10MM	$10.95
DB25, M F			6 ft R6MF	$8.95
Parallel, M M	6 ft C6MM	$9.95	10 ft C10MM	$11.95
Parallel, M F	6 ft C6MF	$9.95	10 ft C10MF	$11.95
IBM Printer	6 ft IBP6	$7.95	10 ft IBP10	$9.95
IBM Printer	15 ft IB15	$16.95	25 ft IBP25	$24.95

We now stock a full line of gender changers, null modems, adaptors, testers and connectors.

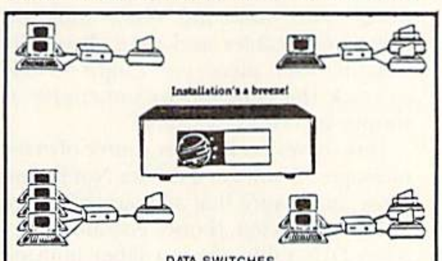


COOLING FAN Heat is a #1 enemy to your disk drive. Reduce bad loads and costly repair bills with a fan, keep your 1541 or 1571 cool. Quiet, surge and spike protection, EMI filtering.

$29.95

TO ORDER: VISA, MASTER CARD, money orders, or check (allow 21 days for check to clear) accepted.

FREE CATALOG, send a post card with your name & address.


Installation's a breeze!

DATA SWITCHES

VSI switches end cable swapping, share equipment. Need extra cables, we stock a broad selection.

- **ONE YEAR WARRANTY**, Deluxe All Metal Case
- Compact Design, Rotary Switch
- Full Shielding, Exceeds FCC Requirements

	AaBb=2 to 2		AB=2 to 1		ABCD=4 to 1	
5 Pin			AB	$29.95	ABCD	$39.95
6 Pin			AB	$29.95	ABCD	$39.95
8 Pin Mini	AaBb	$39.95	AB	$24.95	ABCD	$34.95
DB9			AB	$24.95	ABCD	$34.95
DB25	AaBb	$39.95	AB	$24.95	ABCD	$34.95
Parallel	AaBb	$39.95	AB	$24.95	ABCD	$34.95

OMNITRONIX INTERFACES

HOT SHOT PLUS **$64.95**
Printer interface, 8K buffer, expandable to 64K. 6 fonts plus editor in ROM, prints double or quad density, CPM selection.

DELUX RS232 INTERFACE **$39.95**
Connects standard modems or RS 232 accessories to the C64, C128, 64C, SX64, VIC20, or Plus4.

SERIAL PRINTER INTERFACE **$64.95**
Use a standard RS232 type printer on the Commodore. Connects to Serial Bus (6 pin).

IBM to CBM Adaptor **$37.95**
Now use your C64 compatible printer on a PC compatible. Includes a specially designed cable and software.

Reset Button for C64	$8.95
Disk Notcher	$4.49
Dust Cover, C64, Vic-20	$5.95
Dust Cover, 1541	$5.95
Dust Cover, C128 or 1571	$6.95
Mouse Mat	$5.95
Disk Sleeves, 100 pack	$7.95
Joystick Rapid Fire	$5.95
Aprospand 64	$26.95
Cartridge Port Extension, 12 in	$19.95

MODEM LINK, RS232 Interface $15.95
interfaces a Hayes compatible modem to C64, 64C, C128 or 128D. Full plastic case, 3 x 1½.

VSI 3641 S.W. Evelyn, Portland, OR 97219, Shipping $3.00, VISA, MC, money orders accepted. Price & stock, subject to change.

Circle 51 on Reader Service card.

COMMODORE CLINIC

Creating hi-res 64 screens and troubleshooting your Commodore system.

By ELLEN RULE

Q *How do I make high-resolution screens on my C-64? For games and various other purposes, I want to be able to create and control sprites with a joystick.*

—ADAM HAIN
TRES PINOS, CA

Q *I've been trying to write a program that uses a joystick to move a sprite around the screen, but haven't had very much success. Could you tell me how to do this?*

—GARY STOVALL
TEXARKANA, TX

A In order to read the joystick, use PEEK(56320) for port 2 and PEEK(56321) for port 1. The values you get correspond as follows: 1 = up; 2 = down; 4 = left; 5 = up and left; 6 = down and left; 8 = right; 9 = up and right; 10 = down and right.

The Commodore 64 Users Guide, which comes bundled with your new C-64, and *The Commodore 64 Programmer's Reference Guide*, both published by Commodore Business Machines, are two excellent sources of information for graphics and sprite programming on the 64. The latter, in particular, has an entire section devoted to graphics, including the various screen modes, and sample programs that demonstrate sprite movement and collision detection. In the book's Input/Output Guide section, there are Basic and machine language routines for reading joystick input. By combining and expanding on the sample code, you should have no problems writing the programs you're asking about.

I've also found that author Stan Krute's *Commodore 64/128 Graphics and Sound Programming* (published by TAB Books) contains a great deal of helpful instruction on sprite, character and bit-mapped graphics.

In addition, two articles in *RUN*'s 1989 Special Programming Issue—"C-64 Sprite Basic" and "C-128 Sprite Action"—may be of assistance. And, there are programs in the public domain (available from Commodore telecommunications services and user's group libraries) that you may find useful when designing and creating sprites.

Q *My C-128 works fine for approximately 45 minutes; then the screen freezes and the computer doesn't respond to input. After being turned off for an hour or so, the computer works fine for another 45 minutes. Any idea on what might cause this and how to fix it?*

—CARL J SPEHR
GAHANNA, OH

A It's difficult to diagnose without hands-on contact, but it sounds as if you're having a problem with heat build-up, either in your power supply or in the 128 itself. You may be able to avoid repair expenses by doing some basic troubleshooting of your own.

First, borrow a 128 power supply from a working system and try running your computer with it to see if the problem can be isolated to a faulty power supply. If the lock-up still occurs, then it's time for your 128 to visit a Commodore-authorized repair center.

Other malfunctions can be investigated by the same method of swapping components. For example, if you're not getting sound from a program that produces sound on another computer, first check the obvious—the monitor's volume control knob. Next try your computer with someone else's monitor, using your cables and then theirs. By isolating each piece, you might be able to track the problem to something as simple as a defective cable.

Disk drives are another source of error messages. If you get a Device Not Found error, make sure that all your cables are tightly connected. (I once encountered a 5-pin DIN cable whose rubber housing wouldn't allow it to be inserted far enough into my C-128 to make the proper connection.) Keep the cables behind your system neat by using cable ties or masking tape; cables that are tangled and crossed are subject to magnetic interference from one another.

Repositioning your components may also resolve interference problems. If a disk-access problem seems related to only a few disks, try disconnecting peripherals—like dongles, modems, fast-load cartridges and printer interfaces—that aren't required by the programs.

Q *I own both a 1541 and a 1541-II disk drive. Each one works perfectly when the other is off, but if I try to use one when both are on, I get error messages. I've tried every possible way of connecting the cables, but I haven't found the right combination. How do I hook up and use the two disk drives to my advantage? I'd like to have both working together for use with my Fleet System word processing software and to copy backup disks.*

—JIM CADY
DENTON, TX

A The Commodore 64 and 128 computers use device numbers to indicate where information is to be called from or written to; only one device of each number may be attached and turned on at a time. For example, the Commodore Datassette is device 1, and the modem is 2. The screen of your monitor or television is device 3, while your printer may be device 4 or 5. The disk drive can be device 8, 9, 10 or 11. In your case, I would take advantage of the DIP switches Commodore built into the back of the 1571, 1581 and 1541-II disk drives, which will let you set your 1541-II as device 9 and leave the 1541 as device 8.

The original 1541 drives are set to device 8 unless a solder bridge on the main circuit board is modified. Only a qualified technician should "operate" on the hardware this way, so most people change a device 8 drive to device 9 with this routine: Every time you start up, turn on the second device 8 drive and change it to 9 by loading and running:

```
10 OPEN 15,8,15
20 PRINT#15,"M-W" CHR$(119)
   CHR$(0) CHR$(2) CHR$(9+32)
   CHR$(9+64)
```

Then turn on the other drive (#8).

In order to take full advantage of

both drives, your software must be able to "see" more than one drive. For word processing or other applications, use drive 8 for your program disk and drive 9 to store data on formatted disks. Because each program varies, check your software's manual for information about how to use the second drive as a data drive.

A file-copy program like RUN Copy (see "Friendly File Copier," *RUN*, November 1989) lets you transfer files from one disk to another, while RUN Shell (in RUN Works and RUN's Super Starter Pak) eases file maintenance and disk archival chores.

Q *Is there any software available for the C-128 that takes a program written in Basic and converts it to machine language?*

—DON BROUILLETTE
VILLE PLATTE, LA

A The most common way to produce machine language code is by programming in assembly language and using an assembler program to compile the machine language code. In this operation, there is "source code," the programmer's commented assembly language code, and "object code," the compiled machine language program. Machine language programs tend to run very fast because they're in the computer's native language.

Basic, on the other hand, is an interpreted language, which means that the Basic interpreter built into your C-64 or C-128 reads each instruction, figures out what it means and then executes it—every time the line of code is encountered in a program. This is quite slow in comparison to machine language.

A Basic compiler, such as Abacus's Basic Compiler for the 64 or 128, converts your Basic code to machine code or, optionally, to its own "pseudo-code." Kira Corporation's Gnome Speed for the 128 performs similar magic by converting your Basic code to "P-code," which is its version of pseudo-code. When you use a Basic compiler, each line of the Basic program is interpreted only once—when the code is compiled (or translated) into the machine language that the computer understands. Your Basic program is roughly equivalent to source code, and the compiled Basic is analogous to machine language object code. The conversion can enhance execution by making it up to 30 times faster. ■

RUN*'s contributing editor, Ellen Rule, is our Commodore Clinic guru. In her spare time, she is employed as an R.N., lends her expertise to user's groups and runs a business endeavor, Home Computer Resource.*

Do you have a problem or question about your Commodore computer system, software or programming? Just send your questions to Commodore Clinic, RUN Magazine, 80 Elm St., Peterborough, NH 03458. Queries are answered only through this column, and, due to the volume of mail, only questions likely to appeal to the majority of our readers can be published.

Special offer from RUN Magazine...

MODEM LIQUIDATION SALE! $10.00

HURRY! SUPPLIES LIMITED!

Get a brand-new Commodore 1660® modem for only $10.00! It's the perfect telecommunications starter kit for every C64 and 128 owner!

What can a modem do? It hooks your C64 or 128 via a phone line to the excitement of telecommunications. Use it to get in touch with other Commodore users, connect to on-line services (like Q-link, GEnie, and CompuServe), access local bulletin boards, and so much more!

Why such a low price? The 1660 modem is a 300 baud model –slower than today's modems, but still easy to use and extremely affordable. If you've never used a modem–this one's for you!

Hurry! Order now, because the supply is definitely limited! Call
1-800-343-0728
or mail this coupon, today!

You get all this!

- Commodore 1660® Modem
- Cable to connect to your phone line
- Commodore's "Common Sense®" software
- Complimentary Q-Link Starter Kit (with FREE software and FREE time on Q-Link!)
- All for just $10.00!

YES! Send me a brand-new 1660 modem for only $10.00, plus $3.50 shipping & handling per modem.

My [ ] check [ ] MasterCard [ ] Visa [ ] AmEx account information is enclosed:

Account# ____________ Exp. ______

Signature ____________

Name ____________

Address ____________

City ______ State ______ Zip ______

Please allow 4-6 weeks for delivery. Outside North America, surface shipping/handling is $6.00. Payment in U.S. funds drawn on U.S. bank, or by Visa, MasterCard or American Express. Limit: 3 modems per order. All sales final. All modems have 30 day replacement guarantee.

RUN Modem Offer, 80 Elm St., Peterborough, NH 03458

603-924-9471 or 1-800-343-0728 RN290

128 MODE

Just in the nick of time, here's a useful program to keep your sprites in order.

By MARK JORDAN

ONE OF THE GLORIES of the C-128 is its amazing family of sprite commands—all except the Bump command, that is. Nobody should envy this function, which promises much but delivers little. It's supposed to tell you which sprites are colliding with which, but it reports the information as a number that must be interpreted to be comprehensible.

Even worse, Bump is so slow that one sprite may well move into and *through* another without Bump registering a collision. And if two sprites just nick each other, Bump couldn't care less.

This is such a problem that I finally decided to write my own version of Bump, one that would catch all the nibs, nicks and foul tips. NICK (Newly Invented Collision Kit) is the happy result.

NICK TO THE RESCUE

NICK reports the numbers of the first three sprites that are colliding at any given instant. It does this by means of machine language, which you must install and call if you want to use NICK for your own programming.

Type in Listing 1, using *RUN*'s Checksum program to detect any typing errors, then save it to disk and run it once to get an idea of NICK's power. It will show you eight careening sprites and report on the lowest three (in priority) colliding at any instant.

To install NICK in your own programs, include line 10 and lines 60000 on up in your code. These lines install two machine language routines, one of them an interrupt (at 2816).

To use NICK, you first must start the interrupt, and the SYS 2816 at the end of line 10 does that. Then, anytime in your program that you might have used Bump—that is, anytime you want to know what sprites are colliding—just type SYS 2877: RREG A,X,Y. SYS 2877 jumps into a machine language routine, then RREG A,X,Y returns from it with the numbers of the three lowest-numbered sprites that are colliding held in variables A, X and Y.

For example, if all eight sprites were colliding, A, X and Y would hold 1, 2 and 3. However, if only the odd-numbered sprites were colliding, A, X and Y would hold 1, 3 and 5.

NICK isn't perfect. Due to the very nature of the interrupt-driven sprite commands, it's often a pixel (or even two) late in recording collisions. Also, it reports only the first three collisions. But, compared to the way Bump operates, these shortcomings are nuisances at worst.

To my mind, Bump is the runt of the Basic 7.0 litter. My instincts tell me to destroy the little guy, but I'm an old softy, I guess. I'll just give him a NICK, instead. So should you. 🅁

Mark Jordan is a teacher of English in high school. He has been programming on Commodores for six years or so.

Running Instructions: **Type in Listing 1; then save it to disk and run it.**

Listing 1. NICK program. (Available on ReRun disk. See card at page 36.)

```
1 REM LINE 10 MUST BE AT THE TO
  P OF YOUR PROGRAM      :REM*210
3 REM SYS 2877,0,0,0 TO READ SP
  RITE-SPRITE COLLISIONS:REM*74
4 REM SYS 2877,0,1,0 TO READ SP
  RITE-BACKGROUND COLLISIONS
                         :REM*112
5 REM AFTER SYS USE RREG A,X,Y
  TO FIND FIRST 3 COLLIDING SPR
  ITES.{2 SPACEs}SEE LINE 110
                         :REM*169
6 :                       :REM*64
10 FORT=0TO114:READA$:POKE2816+
   T,DEC(A$):NEXT:SYS 2816
                          :REM*88
20 :                      :REM*78
30 REM DEMO PROGRAM BELOW
                         :REM*147
40 COLOR0,12:GRAPHIC1,1 :REM*13
50 CHAR,0,0,"{3 SPACEs}",1:CHAR
   ,0,1,"{3 SPACEs}",1:CHAR,0,2
   ,"{3 SPACEs}",1       :REM*10
60 FORT=1TO8:CHAR,0,1,STR$(T),1
   :SSHAPE A$,0,2,23,22:SPRSAV
   A$,T:NEXT              :REM*58
70 FORT=1TO8:SPRITET,1,T:MOVSPR
   T,T*40,150:MOVSPRT,T*75#2:NE
   XT                    :REM*181
80 GRAPHIC0,1:COLOR0,12:COLOR4,
   12                     :REM*52
90 :                     :REM*148
100 DO                    :REM*78
110 SYS2877,0,0,0:RREG A,X,Y
                          :REM*94
120 IFA THEN CHAR,17,12,STR$(A)
    +STR$(X)+STR$(Y)     :REM*243
130 LOOP                 :REM*111
140 :                    :REM*198
60000 DATA 78,A9,0D,8D,14,03,A9
      ,0B                 :REM*93
60010 DATA 8D,15,03,58,60,AD,19
      ,D0                  :REM*4
60020 DATA 29,04,F0,26,AD,1A,D0
      ,29                :REM*251
60030 DATA 04,F0,17,AD,1A,D0,29
      ,FB                 :REM*42
60040 DATA 8D,1A,D0,AD,1E,D0,8D
      ,F0                :REM*167
60050 DATA 0B,AD,1F,D0,8D,F1,0B
      ,4C                  :REM*3
60060 DATA 33,FF,AD,1A,D0,09,04
      ,8D                 :REM*84
60070 DATA 1A,D0,4C,65,FA,BD,F0
      ,0B                :REM*207
60080 DATA A2,01,A0,00,8C,F2,0B
      ,8C                :REM*135
60090 DATA F3,0B,8C,F4,0B,18,4A
      ,90                :REM*234
60100 DATA 0B,48,8A,99,F2,0B,68
      ,C8                 :REM*18
60110 DATA C0,03,F0,05,E8,E0,09
      ,D0                :REM*141
60120 DATA EC,A9,00,8D,F0,0B,8D
      ,F1                 :REM*40
60130 DATA 0B,AD,F2,0B,AE,F3,0B
      ,AC                :REM*105
60140 DATA F4,0B,60      :REM*163
```

■

RUN it right: **C-128**

RUN'S CHECKSUM & PROGRAM TYPING HINTS

TYPE IN *RUN*'S CHECKSUM, which serves for both the C-64 and for the C-128 in either 40- or 80-Column mode, and save it to disk before running it. When typing in a program from *RUN*, first load and run *RUN*'s latest version of the Checksum program, which contains a new feature explained below. The screen will display a SYS number (49152 for the C-64; 3328 for the C-128) that deactivates and reactivates the Checksum. Always disable *RUN*'s Checksum before attempting to run another program. Note: You can abbreviate Basic keywords; spaces affect the checksum only when within quotes; and the order of characters affects the checksum.

When you press return after typing in a program line, a one-, two-, or three-digit number from 0 to 255 appears in the home position. If this number matches the checksum value in the program listing, the line as you typed it is correct. If the number that appears doesn't match the checksum value, compare the line with the magazine listing to find your error. Then move the cursor back up to the line and make your corrections. Now, after you press return, the correct checksum value should appear. Continue entering the listing until all the lines have been correctly typed. Then deactivate *RUN*'s Checksum, using the appropriate SYS number, and save the finished program.

We sometimes get letters and phone calls from new readers who have typed in the Checksum program for the first time. They are confused by the "Out of Data Error in Line 30" message that appears when they try to run the Checksum program. Understandably, they compare line 30 of the listing with line 30 as they typed it in, and cannot find anything wrong. The message unintentionally misleads them into thinking the error is in line 30, whereas the typing mistake is actually somewhere in one of the Data statements in lines 190–350.

So, we've added a new feature to the Checksum program that alerts readers to the number of the Data statement line in the Checksum program where an error has actually been made. **Note that this feature works *only* on the Checksum program itself, and not on any other program listing in *RUN*.**

After you've entered and saved the Checksum program to disk, run it. If you've made any errors in any of the Data statements, the program will give you a specific line number. Find the mistake, correct it, press return, save the program and run it again. Repeat this procedure until the Checksum program runs flawlessly.

CONTROL CHARACTERS DEMYSTIFIED

All the graphics and control characters in the listings in *RUN* have been translated into understandable key combinations. They are the instructions you see inside the curly braces. For example, {SHIFT L} means you hold down the shift key while you press the L key once. You do *not* type in the curly braces. What appears on the screen will look quite different from what is designated inside the braces. Here are some more examples:

{22 SPACES}—press the space bar 22 times.

{SHIFT CLR}—hold down the shift key and press the clr-home key once.

{2 CRSR DNs}—press the cursor-down key twice.

{CTRL 1}—hold down the control key and press the 1 key.

{COMD T}—hold down the Commodore logo key and press the T key.

{5 LB.s}—press the British pound key (£, *not* #) five times.

Refer to the following paragraphs for any other Error messages you get from running any program listing in *RUN*.

OTHER ERROR MESSAGES

Having heard from many users over the years about their difficulties with typing in listings, we've identified a few recurring problems that plague many people but are easy to fix. So read on and see if your problem is one of these.

- You get an "Out of Data in Line xxx" message. This means that a program line was reading from Data statements and reached the end of the data before it was done reading. There are two possible problems.

One might be with the program line that reads the data, usually a For-Next loop. Make sure you have the proper values for the loop, because if, for example, the listing has a loop of 0 to 150, and you've typed 0 to 160, you'll get the Out of Data message. If the loop is correct, then the problem lies in the Data statements themselves. One possibility is that you omitted a whole line of data. That's easy enough to find and correct. It's more likely that you've skipped one or more individual data items or typed in a period instead of a comma, which causes two data values to be read as one number. Check your typing carefully against the listing. Using *RUN*'s Checksum program when you type in listings from the magazine should help in this case.

- You get an "Illegal Quantity Error in Line xxx" message. This means you've read a number from a Data statement and tried to poke it into a memory address. The error occurs because the number is larger than 255 (the largest value a memory address can contain), which means that somewhere in your Data statements you've made an error by typing in a number larger than 255. Again, this is easy to check for and correct. First look in your Data statements for a number larger than 255. You might have added an extra digit, or perhaps you ran two numbers together (23456 instead of 234,56).
- You get a "Syntax Error in Line xxx" message. This could be almost anything. What it tells you is that there is something wrong in the indicated line. Usually you've misspelled a Basic keyword or omitted some required character. List the line and examine it carefully.
- You get an "Error in Data" message. This occurs in programs that add up all the data as read, and, when finished, compares that sum with what it should be if the data were typed in correctly. If it isn't the same, it means an error somewhere in typing the Data statements. Go back and check the data carefully. Correct the mistake(s), save the new version and try again.
- Finally, we urge everyone who intends to type in one of our listings to use *RUN*'s Checksum program, which will help you avoid every mistake we've mentioned above, except that it won't detect the omission of a line. Ⓡ

Listing. *RUN*'s Checksum program. This program is available on *RUN*'s BBS for users to download.

```
10 REM RUN'S CHECKSUM 64/128 - BOB KODADEK
20 MO=128:SA=3328:IF PEEK(40960)THEN MO=64:SA=49152
30 I=0:CK=0:CH=0:LN=190
40 FOR K=0 TO 16
50 FOR J=1 TO 10:READ B:IF B>255 THEN GOTO 170
60 CH=CH+B:POKE SA+I,B:I=I+1:NEXT
70 READ LC
80 IF LC<>CH THEN GOTO 170
90 CH=0:LN=LN+10
100 NEXT K
110 POKESA+110,240:POKESA+111,38:POKESA+140,234
120 PRINTCHR$(147)STR$(MO)" RUN CHECKSUM":PRINT
130 PRINT"TO TOGGLE ON OR OFF, SYS"SA:IF MO=128 THEN 1
    60
140 POKESA+13,124:POKESA+15,165:POKESA+25,124:POKESA+2
    6,165
150 POKESA+39,20:POKESA+41,21:POKESA+123,205:POKESA+12
    4,189
160 POKESA+4,INT(SA/256):SYS SA:NEW
170 PRINT"YOU HAVE A DATA ERROR IN LINE ";LN;"!":END
180 REM DO NOT CHANGE THESE DATA STATEMENTS!
190 DATA 120,162,24,160,13,173,4,3,201,24,884
200 DATA 208,4,162,13,160,67,142,4,3,140,903
210 DATA 5,3,88,96,32,13,67,152,72,169,697
220 DATA 0,141,0,255,133,176,133,180,166,22,1206
230 DATA 164,23,134,167,132,168,170,189,0,2,1149
240 DATA 240,58,201,48,144,7,201,58,176,3,1136
250 DATA 232,208,240,189,0,2,240,42,201,32,1386
260 DATA 208,4,164,180,240,31,201,34,208,6,1276
270 DATA 165,180,73,1,133,180,230,176,164,176,1478
280 DATA 165,167,24,125,0,2,133,167,165,168,1116
290 DATA 105,0,133,168,136,208,239,232,208,209,1638
300 DATA 169,42,32,210,255,165,167,69,168,170,1447
310 DATA 169,0,32,50,142,169,32,32,210,255,1091
320 DATA 32,210,255,169,13,32,210,255,104,168,1448
330 DATA 96,104,170,24,32,240,255,104,168,96,1289
340 DATA 56,32,240,255,138,72,152,72,24,162,1203
350 DATA 0,160,0,32,240,255,169,42,208,198,1304
```

■

Join SD of A's Sale-A-Brate A

We have what

D STATES OF AMERICA
10
TEN
DOLLARS

On a Budget?

See Our Under $10 Bargain Basement.

ACCOLADE	
Ace of Aces	$9.88
Apollo 18	$9.88
Bubble Ghost	$9.88
4th & Inches Football	$9.88
4th & Inches Team Const.	$6.88
Hardball	$9.88
Test Drive 1	$9.88
ACTIVISION	
Aliens	$9.88
Apache Strike	$9.88
Ghostbusters	$9.88
Hacker 1 or 2	$9.88 Ea.
Last Ninja #1	$9.88
Ocean Ranger	$9.88
Predator	$9.88
Shanghai	$9.88
Transformers	$9.88
ADVANTAGE	
Frightmare	$9.88
Harrier 7	$9.88
Mental Blocks	$9.88
Shootem Up Const. Set	$9.88
Spy vs. Spy 1 & 2	$9.88
AEC FUN LEARNING	
Life Science	$5.88
U.S. Geography	$5.88
U.S. Government	$5.88
U.S. History 1 or 2	$5.88 Ea.
Vocabulary Builder	$5.88
BOX OFFICE	
Alf	$9.88
High Rollers & $100,000 Pyramid	$9.88
BRODERBUND	
Arcade Game Const. Kit	$9.88
Choplifter/Davids Midnight Magic	$6.88
Karateka	$6.88
Loderunner	$6.88
Magnetron	$9.88
Superbike Challenge	$6.88
CINEMAWARE CLASSICS	
Sinbad	$9.88
COSMI	
Swift Data Base	$6.88
Swift Desktop Publisher	$6.88
Swift Music	$6.88

Swift Paint	$6.88
Swift Spreadsheet	$6.88
Swift Word Processor	$6.88
DATA EAST	
Ikari Warrior	$9.88
Platoon	$9.88
EASY WORKING/ SPINNAKER	
Filer	$6.88
Planner	$6.88
Writer	$6.88
ELECTRONIC ARTS	
Adv. Const. Set	$9.88
Amer. Cup Sailing	$7.88
Artic Fox	$9.88
Deathlord	$9.88
Demon Stalkers	$9.88
Financial Cookbook	$7.88
Instant Music	$9.88
Legacy of Ancients	$9.88
Lords of Conquest	$9.88
Marble Madness	$9.88
Mars Saga	$9.88
Modem Wars	$9.88
Music Const. Set	$9.88
Pegasus	$9.88
Pinball Const. Set	$9.88
Powerplay Hockey	$9.88
Realm of Impossibility	$7.88
Skyfox	$9.88
Skyfox 2	$9.88
Skate or Die	$9.88
Strike Fleet	$9.88
Super Boulder Dash	$9.88
Wasteland	$9.88
World Tour Golf	$9.88
EPYX	
4×4 Off Road Racing	$9.88
Boulderdash Const. Kit	$9.88
Jet Combat Simulator	$9.88
Space Station Oblivion	$9.88
Spy vs. Spy 3	$9.88
Temple Apshai Trilogy	$9.88
Winter Games	$9.88
World Karate Champ	$6.88
GAMESTAR	
Champ. Baseball	$9.88
Champ. Basketball	$9.88
GFL Ch. Football	$9.88

On Court Tennis	$9.88
Star League Baseball On Field Football	$9.88
Take Down	$9.88
GAMETEK	
Candy Land	$9.88
Chutes & Ladders	$9.88
Double Dare	$9.88
Go To Head of Class	$9.88
Hollywood Squares	$9.88
Press Your Luck	$9.88
Super Password	$9.88
HI-TECH EXPRESSIONS	
Fun House	$8.88
Looney Tunes Print Kit	$9.88
Muppet Adventure	$9.88
Print Power	$9.88
Remote Control	$8.88
Win, Lose or Draw	$8.88
Win, Lose or Draw 2	$8.88
Win, Lose or Draw Jr.	$8.88
HI-TECH EXPRESSIONS	
Sesame Street Series:	
Astro Grover	$6.88
Big Bird's Special Delivery	$6.88
Ernie's Big Splash	$6.88
Ernie's Magic Shapes	$6.88
Grover's Animal Adv.	$6.88
Pals Around Town	$6.88
Sesame St. Print Kit	$9.88
INFOCOM	
Hitchhikers Guide	$9.88
Leather Goddesses	$9.88
Zork 1	$9.88
INTRACORP	
Business Card Maker	$9.88
KONAMI/ACTION CITY	
Hyper Sports/Ping Pong	$9.88
MASTERTRONIC	
Last V-8	$4.88
Ninja	$4.88
Slam Dunk	$6.88
Vegas Poker & Jackpot	$4.88
MELBOURNE HOUSE	
John Elway's Q-Back	$9.88
MINDSCAPE	
Captain Blood	$9.88
Combat Course	$9.88

Gauntlet 1	$9.88
Harrier Combat Sim	$9.88
I. Jones Temple Doom	$9.88
Mastertype (Cart)	$9.88
Paperboy	$9.88
Pole Position 2	$9.88
Road Runner	$9.88
720 Skateboarding	$9.88
SHARE DATA	
All New Family Feud	$8.88
Concentration	$9.88
Concentration 2	$9.88
Jeopardy	$8.88
Jeopardy Jr	$9.88
Jeopardy 2	$9.88
Sports Jeopardy	$9.88
Wheel of Fortune	$8.88
Wheel of Fortune 2	$9.88
Wheel of Fortune 3	$9.88
Wipe Out	$9.88
SPECTRUM HOLOBYTE	
Gato	$9.88
SPINNAKER	
Cosmic Combat	$4.88
Dark Tower	$4.88
Karate Chop	$6.88
Learn the Alphabet	$4.88
Learn to Spell	$4.88
Learn to Add	$4.88
SPRINGBOARD	
Certificate Maker	$9.88
C.M. Library Vol. 1	$9.88
Newsroom	$9.88
N.R. Art #1, 2, or 3	$9.88 Ea.
TAITO	
Alcon	$9.88
Arkanoid	$9.88
Bubble Bobble	$9.88
Renegade	$9.88
THUNDER MOUNTAIN	
Galaxian	$8.88
Rambo: First Blood Part II	$6.88
Super Pac Man	$9.88
VALUE WARE	
Artist	$4.88
Educator	$4.88
Entertainer	$4.88
Home Banker	$4.88

!!! SDA CLOSEOUTS !!!

EPYX Basic Tool Kit	$6.66	Silman's Chess Opening	$15.15
E.A. Amer. Cup Sailing	$6.66	Treasure Island	$6.66
Financial Cookbook	$6.66	Great Chefs Recipes	$8.88
Electronic Address Book	$4.44	Unicorn-Jumble Jet	$11.11
Worlds Greatest Baseball	$6.66	Mastertronic-Feud	$4.44
Pro Golf	$4.44	Jet Boys	$6.66
Bus-Calc 3 Spreadsheet	$7.77	Mastertronic-Ten Speed	$4.44
Heart of Africa	$3.33	Master of Magic	$3.33
Boston Computer Diet	$8.88	CBS Math Mileage	$3.33
Shogun-Mastertronic	$4.44	Alien Destination Set	$7.77
Gulf Strike	$8.88	Sea Speller	$2.22
Super Zaxxon	$4.44	Doc the Destroyer	$6.66
Blowup Graphics	$11.11	CBS Argos Expedition	$3.33
CBS Timebound	$3.33	EPYX 200XJ Joystick	$6.66
Phantom of the Asteroids	$2.22	'Quantities Limited	

ACCOLADE	
Blue Angels Flight Sim	$19
Bubble Ghost	$19
Cycles	Call
Fast Break	$19
Grand Prix Circuit	$19
Heat Wave Boat Racing	$19
Jack Nicklaus Golf	$19
J.N. Glf. Chmp. Courses	$9.88
J.N. Glf. Int'l Courses	$9.88
Mini Putt	$19
Rack 'Em	$19
Serve & Volley	$19
Steel Thunder	$19
Test Drive 2: The Duel	$19
T.D. 2: Europe Scenery	$9.88
T.D. 2: Muscle Cars	$9.88
T.D. 2: Calif. Scenery	$9.88
T.D. 2: Super Cars	$9.88
T.K.O.	$19
ACTIVISION	
Battlechess	$25
Beyond Dark Castle	$19

'Font Pak Plus	$19
'Geo-Chart	$19
'Geo-Calc	$33
'Geo-File	$33
'Geo-Programmer	$44
'Geo-Publish	$33
'Requires Geos 64!	
BLUE LION	
Ticket to Hollywood	$19
Ticket to London	$19
Ticket to Paris	$19
Ticket to Spain	$19
Ticket to Wash. D.C.	$23
BRITANNICA	
Eye of Horus	$25
BRODERBUND	
Bank St. Writer	$33
Carmen S.D. - Europe	$25
Carmen S.D. - U.S.A.	$25
Carmen S.D. - World	$23
Downhill Challenge	$14
Licence to Kill	$14
Omni-Play Basketball	$23

THUNDER MOUNTAIN

Wow! 10 great games for one low price! The Mist • Bop'n Wrestle • Tau Ceti • Eagles Nest • Wiz Ball • Rock Roll Trivia • Uridium • Great Escape • Bad Street Brawler.

THUNDER MOUNTAIN

Action Pack Vol. 1
Value $150

SDA
Discount Price $14

Crossbow	$19
Dragon Wars	$29
F14 Tomcat	$25
F18 Hornet	$23
Grave Yardage	Call
Last Ninja 2	$23
Neuromancer	$25
Rampage	$23
AMERICAN EDUCATIONAL	
Biology	$12
Learn to Read (Gr. 1-4)	$25
Science: Grades 3/4	$12
Science: Grades 5/6	$12
Science: Grades 7/8	$12
US Geography	$12
US History	$12
World Geography	$12
World History	$12
ARTWORX	
Bridge 5.0	$19
Cycle Knight	$14
Daily Double Horse Race	$14
Kaleidokubes	$14
Linkword Languages	$16 Ea.
S. P. Data Male #2	$14
S. P. Data Female #1 or 3	$14
Strip Poker	$21
Tank Attack	$19
AVALON HILL	
NBA Basketball	$25
Super Sunday	$21
SBS Gen. Mgr. Disk	$19
SBS 1987 Team Disk	$14
BATTERIES INCLUDED	
Paperclip Publisher	$33
Paperclip 3	$33
BAUDVILLE	
Award Maker Libraries	Call
Award Maker Plus	$25
Blazing Paddles	$23
Video Vegas	$19
BERKELEY SOFTWORKS	
Geos 128 2.0	$44
Geo-Calc 128	$44
Geo-File 128	$44
Geos 64 (2.0)	$39
'Desk Pack Plus	$19

Print Shop	$26
P.S. Companion	$23
P.S. Graphics Library #1, 2 or 3	$16 Ea.
P.S. Graphics Library Holiday Edition	$16
Sim City	$19
Star Wars	$19
CAPCOM	
Bionic Commando	$19
Ghosts & Gobblins	$19
Gunsmoke	$19
Street Fighter	$19
CENTRAL POINT	
Copy 2	$25
CINEMAWARE	
Defender of the Crown	$23
Rocket Ranger	$23
The Three Stooges	$23
T.V. Sports Football	$19
Warp Speed (Cart)	$33
CMS	
General Acct. 64 or 128	$119 Ea.
Inventory 128	$49
COSMI	
Chomp!	$16
Home Office	$25
Navy Seal	$19
Presumed Guilty!	$16
Super Huey 2	$14
DATA EAST	
ABC Monday Nite Football	$25
Bad Dudes	$19
Batman	$16
Breakthru	$19
Commando	$14
Guerilla War	$19
Heavy Barrel	$19
RoboCop	$23
Speed Buggy	$19
Super Hang-on	$19
Tag Team Wrestling	$14
Victory Road	$19
Vigilante	$16
DATA SOFT	
Alternate Reality: The City	$19

ABACUS BOOKS	
Anatomy of the 1541	$14
Anatomy of the C64	$14
GEOS Inside & Out	$13
GEOS Tricks & Tips	$13
ABACUS SOFTWARE	
Assembler Monitor	$25
Basic	$25
Basic 128	$39
'Becker Basic	$33
Cad Pak	$25
Cad Pak 128	$39
Chart Pack 64 or 128	$25 Ea.
Cobol 64 or 128	$25 Ea.
Fortran	$25

PPM	$25
PPM 128	$39
Speed Term 64 or 128	$25
Super C64 or 128	$39 Ea.
Super Pascal 64 or 128	$39 Ea.
TAS 128	$39
'Requires GEOS!	
ACCESS	
Echelon w/Lip Stik	$29
Heavy Metal	$25
Mean Streets	$25
Tenth Frame	$25
World Class L. B. Golf	$25
World Class L. B. Golf Fam. Course 1, 2 or 3	$14. Ea.

'Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in-stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! Shipping: Continental U.S.A.-Orders under $100 add $3; free shipping on orders over $100. AK, HI, FPO, APO-add $5 on all orders. Canada & Puerto Rico add $7.50 on all orders. Sorry, no other international orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE HOURS: Mon.-Fri. 9 AM-5:30 PM Eastern Time. REASONS FOR CALLING CUSTOMER SERVICE—412-361-5291 (1) Status of order or back order (2) if any merchandise purchased within 60 days from SD of A is defective, please call for a return authorization number. We will not process a return without a return auth. #! Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 20% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on SD of A's. 800 # order lines! Prices & availability are subject to change! New titles are arriving daily! Please call for more information.

New Year's Save Party... New Decade of Deep Discounts!

you're looking for!

ULTRA

From the Saturday morning cartoons come the heroes in a half shell. Grab your nunchukus & hit the villainous streets or you'll get turned into turtle soup.

TEENAGE MUTANT NINJA
TURTLES
ULTRA

TEENAGE MUTANT NINJA TURTLES
List $29.95

SDA
Discount Price $19

The Dungeon	$19
Bismarck	$19
Firezone	$19
Global Commander	$19
Hunt for Red October	$26
Lancelot	$21
Rubicon Alliance	$14
Time & Magik	$21
DAVIDSON	
Algeblaster	$19
Math Blaster	$19
Spell It	$19
Word Attack	$19
DESIGNWARE	
Body Transparent	$19
Designasaurus	$19
DIGITAL SOLUTIONS	
Pocket Filer 2	$23
Pocket Planner 2	$23
Pocket Writer 2	$33
All 3 in 1 Super Pak	$59
DIGITEK	
Hole in One Min. Golf	$19
Hollywood Poker	$19
Western Games	$19
ELECTRONIC ARTS	
Bard's Tale 2 or 3	$26 Ea.
Bard's Hints 1, 2 or 3	$9 Ea.
Beyond the Black Hole	$21
Caveman Ugh-Lympics	$21
Chessmaster 2100	$26
Chuck Yeagers AFT	$23
Double Dragon	$23
Dragon's Lair	$19
Empire	$26
Ferrari Formula One	Call
Fire King	$21
Indiana Jones Last Crusade Arcade Version	$21
Jordan vs. Bird	$21
Kings Beach Volleyball	$21
Madden Football	$26
Magic Candle	$26
Maniac Mansion	$23

Might & Magic 1 or 2	$25 Ea.
Pipe Dream	$21
Project Firestart	$21
Starflight	Call
Star Fleet 1	$26
Zak McKracken	$23
EPYX	
Death Sword	$14.88
Devon Aire	$19.88
Games: Summer Ed.	$19.88
Metrocross	$12.88
Mind-Roll	$14.88
Revenge of Defender	$19
Snow Strike	$14.88
Sports-A-Roni	$17.88
Sporting News Baseball	$19.88
GAMESTAR	
Face Off Hockey	$19
HI-TECH EXPRESSIONS	
Win, Lose or Draw Deluxe	$16
INFOCOM	
Battletech	$25
Zork Triology	$16
INKWELL SYSTEMS	
#170C Deluxe L.P.	$69
#184C Light Pen	$44
Flexidraw 5.5	$23
Graphics Galleria #1	$19
Graphics Galleria #2	$19
Graphics Integrator 2	$19
INTRACORP	
Bumper Sticker Maker	$33
Button & Badge Maker	$33
Search For The Titanic	$19
Security Alert	$19
Superman	$19
Ultimate Casino Gambling	$23
KONAMI/ULTRA	
Teenage Mutant Ninja Turtles	$19
LEARNING COMPANY	
Moptown Parade	$25

MICROPLAY

Use skill, determination & lightning fast reactions to battle the onslaught of speedy monsters. Rescue the maiden & recover the special powers imprisioned deep inside the castle's labyrinth.

SAVAGE
MICROPLAY

SAVAGE
List $29.95

SDA
Discount Price $19

Reader Rabbit	$25
LOGICAL DESIGN	
Club Backgammon	$19
Vegas Craps	$19
Vegas Gambler	$19
LEISURE GENIUS	
Monopoly	$19
Risk	$19
Scrabble	$19
Scrupples	$19
MEDALIST/MICROPLAY	
3-D Pool	$19
Destroyer Escort	$25
Dr. Doom's Revenge	$23
Eliminator	$19
Netherworld	$19
Pro Soccer	$23
Pure Stat Baseball	$25
Pure Stat College B-Ball	$25
Pure Stat Football	$25
Savage	$19
MELBOURNE HOUSE	
Barbarian	$19
Hershiser's Strike Zone	$19
Magic Johnson B-Ball	$19
Obliterator	Call
War in Middle Earth	$25
World Trophy Soccer	$19
MICROILLUSIONS	
Blackjack Academy	$25
Faery Tale Adventure	$29
Sky Travel	$32
MICROLEAGUE	
Baseball	$25
Box Score Stats	$16
87 or 88 Team Disk	$14 Ea.

Road Runner	$23
Sgt. Slaughters Mat Wars	$19
Shinobi	$19
Sports Mega Hits	$25
Super Star Ice Hockey	$23
Super Star Soccer	$23
Thunder Blade	$23
Uninvited	$23
MISC UTILITIES	
Bob's Term Pro	$29
Bob's Term Pro 128	$39
Doodle	$25
Final Cartridge 3	$47
Font Master 128	$29
Maverick Utilities V.3	$23
Superbase 64	$25
Superbase 128	$33
Superscript 64	$23
Superscript 128	$25
Super Snapshot (V.5)	$47
ORIGIN	
Autoduel	$25
Knights of Legend	$33
Moebius	$25
Omega	$33
Quest For Clues Book 2	$19
Space Rogue	$33
Tangled Tales	$19
Times of Lore	$25
Ultima 4 or 5	$39 Ea.
Ultima 5 Hint Book	$9
Ultima Trilogy	$39
Windwalker	$25
POLARWARE	
All Dogs go to Heaven	$19

MINDSCAPE INC.

5 Great Mindscape arcade hits in 1 unbelievable pkg. at a super low price!

- Gauntlet • Paperboy
- Ind. Jones Temple of Doom
- Block Buster
- Road Runner

ARCADE MEGA-HITS

ARCADE MEGA HITS
$175 Value

SDA
Discount Price $32

General Manager	$19
WWF Wrestling	$19
MICROPROSE	
Airborne Ranger	$25
F-15 Strike Eagle	$14
F-19 Stealth Fighter	$29
Gunship	$25
Pirates	$29
Project Stealth Fighter	$29
Red Storm Rising	$29
Silent Service	$14
MINDSCAPE	
Action Fighter	$19
Afterburner	$23
Alien Syndrome	$23
Arcade Mega Hits	$25
Aussie Games	$19
Clubhouse Sports	$19
Crossword Magic	$19
De Ja Vu	$23
Gauntlet 2	$19
Hostage	$19
Indoor Sports	$19
Int'l. Team Sports	$19
Out Run	$23

PROFESSIONAL	
Fleet System 2 Plus	$33
Fleet System 4 128	$43
PSYGNOSIS	
Baal	$19
Ballistix	$19
Blood Money	$19
Captain Fizz	$19
Menace	$16
SHARE DATA	
Nightmare on Elm Street	$19
SIMON & SCHUSTER	
Star Trek: Rebel	$23
Typing Tutor 4	$25
SIR TECH	
Wizardry Trilogy	$25
SOFT-BYTE	
Lotto Program	$19
SPECTRUM HOLOBYTE	
Tetris	$16
SPOTLIGHT	
Darkside	$21
Death Bringer	$21

TIMEWORKS

You won't find an easier, faster, more accurate tax program than this. Includes 37 forms & schedules for 1989 fed. tax returns.

SWIFTAX
List $59.95

SDA
Discount Price $33

Speedball	$21
Total Eclipse	$21
SSI	
'Hintbooks Available	Call
Battles of Napoleon	$32
Curse of Azure Bonds	$26
D. M. Mast. Asst. 1 or 2	$21 Ea.
Demon's Winter	$21
Eternal Dagger	$26
First Over Germany	$32
Gettysburg	$39
Hillstar	$26
Heroes of the Lance	$21
Overrun	$32
Pool of Radiance	$26
Storm Across Europe	$39
Typhoon of Steel	$32
War Game Const. Set	$21
War of the Lance	Call
SPINNAKER	
EZ Working Tri-Pack	$14
Turbo Load & Save	$16
SUBLOGIC	
Flight Simulator 2	$32
F.S. Scenery Disks	Call
Hawaii Scenery	$19
Jet	$26
Stealth Mission	$32
Thunder Chopper	$19
Up Periscope	$19
TAITO	
Arkanoid 2: Revenge	$19
Operation Wolf	$19
Qix	$19
Rambo 3	$19
Rastan	$19
Sky Shark	$19
THREE SIXTY	
Dark Castle	$23
Thud Ridge	$23
Warlock	$19

TIMEWORKS	
Data Manager 2	$14
Evelyn Wood Reader	$14
Swiftax	$33
Swiftcalc/Sideways	$14
Word Writer 4	$25
UNICORN	
Decimal Dungeon	$19
Percentage Panic	$19
Ten Little Robots	$19
UNISON WORLD	
P.M. Art Gallery 1 • 2	$19
P.M. Art Gallery: Fantasy	$16
Print Master Plus	$23
VIRGIN GAMES	
Double Dragon 2	$23
WEEKLY READER	
Stickybear Series:	
ABC's	$23
Math 1 or 2	$23 Ea.
Numbers	$23
Opposites	$23
Reading	$23
Spellgrabber	$29
Typing	$29
ACCESSORIES	
Animation Station	$49
CompuServe Starter Kit	$19
Bonus 5¼ DSDD	$4.99 Bx.
Freedom Cordless Joystick	$44
Sony 5¼ DSDD	$6.99 Bx.
Disk Case (Holds 75)	$6.88
Disk Drive Cleaner	$4.88
1 Controller	$14
Winner M3 Analogue Mouse	$33
EPYX 500 XJ Joystick	$14
Wico Bat Handle Joystick	$17
Wico Boss Joystick	$12
Wico Ergostick Joystick	$16
XETEC Super Graphix	$59
XETEC Super Graphix Jr.	$39
XETEC Super Graphix Gd.	$79

STRATEGIC SIMULATIONS, INC.

When war erupts over the lands of Ansalon, you don't just move characters...You move entire armies! Prepare for fierce Battles.

Advanced Dungeons & Dragons

WAR OF THE LANCE
List $39.95

Call For Price & Availability

Speedy Delivery

Deep Discounts

Astronomical Selections

If you can't find what you're looking for in our ad, call us.

Ask your Salesperson what's on sale this month!

USA/CANADA orders
1-800-225-7638
PA Orders 1-800-223-7784
Customer Service (412) 361-5291
Fax Order Line (412) 361-4545

- Free shipping on orders over $100 in continental USA.
- No surcharge for VISA/MasterCard.
- Your card is not charged until we ship.
- School purchase orders accepted.

Send check or money orders to:
P.O. Box 111327-Dept. RN
Blawnox, PA 15238

Software Discounters Of America

Order Line Hours: Mon.-Thurs. 9:00 AM-9:00 PM, Fri. 9:00 AM-7:00 PM, Sat. 10:00 AM-4:00 PM Eastern Time

MODEM OWNERS: You can order on-line from our Commodore Shop via the CompuServe, GEnie and Q-Link electronics malls.

Circle 245 on Reader Service card.

GEOWATCH

Here's some geoNews and also geoAnswers to your specific geoQuestions.

By TIM WALSH

SINCE I LAST AUTHORED this column (July 1989), very few Commodore-compatible products and announcements have been forthcoming from Berkeley Softworks. A notable exception is BSW's promise of a 512K RAM expansion unit. With Commodore ceasing production of their 512K 1750 REU nearly a year ago, Berkeley's replacement will be most welcome, as it's a necessity for users of the C-64 and 128 versions of GEOS 2.0.

Other news: QuantumLink now offers everything from interesting geoPaint artwork to conversion programs to online GEOS-related courses. Anyone using GEOS application software for work or entertainment should seriously consider the benefits of a modem and membership in Q-Link.

GEO Q & A

My mail tells me that many of you are finding it increasingly difficult to obtain responses to all your geoQuestions. I'll do my part by providing answers here this month. In next month's geoWatch, you can look forward to a compilation of useful geoTips.

Q *Using a Commodore 1750 REU has reduced the execution times of all my GEOS applications. However, unless I've planned an extensive editing session, I don't bother copying the programs over to the REU—it's far too time-consuming. Is there a batch file copy utility that expedites the copying of GEOS files to the REU?*

—JIM PURCELL
MILWAUKEE, WI

A If you have a copy of GEOS 2.0 for the C-64 or C-128, you're in luck. A multi-file copy utility is as close as your Commodore key. After using the Configure 2.0 utility to configure your REU as device B or C, activate the source disk on the deskTop.

Next, hold down the Commodore key and position the pointer over each file to be copied; click once on each one. You can even flip pages forward and backward to find all the necessary files. After selecting the last file, click the pointer one more time, and a ghost icon with the words "Multi File" will replace the pointer.

Position this icon over the destination drive and press the mouse button once to drop all the files into that drive. When copying files to RAM and other drives, you'll find this process so fast and convenient that you'll wonder how you ever got along without it!

Q *I recently began working with GEOS 128, but I've yet to get it to print properly with my Epson FX-86e printer. I encounter no problems when printing with other programs.*

—MILT FITZWATER
APO, NEW YORK

Q *When using geoPaint 1.3, my Panasonic KX-P1080i printer (with Xetec Super Graphix interface) prints about two-thirds of the geoPaint image, starting at the left side, and cuts off approximately one-third of the right side. No error message ever appears to indicate anything amiss. What's wrong?*

—SHIBU KINATUKARA
YONKERS, NY

A Both of these printer woes are relatively easy to fix. I'll address Shibu's geoPaint problem, since it's described in specific detail, but the solution is also applicable to Milt's query. GeoPaint doesn't return an error message, because as far as the software is concerned, nothing is wrong with the printing. The problem lies with either your printer interface or printer driver, either of which can lock the printer into outputting 60 dpi (dots per inch) images that lack the rightmost one-third of the screen image.

First, make sure that your printer interface is *not* set to emulate any type of Commodore printer. As with any printer interface used with GEOS, it must be set to Transparent mode. With the Xetec Super Graphix, you can set it to Transparent mode by moving all the DIP switches to the "off" position.

Second, be certain that you're *not* using a Commodore-compatible printer driver from within GEOS. Most Panasonic printers—yours included, Shibu—work fine when you select any of the GEOS Epson printer drivers (with the exception of the Epson JX-80) from the Select Printer option found on the deskTop. With the printer interface in Transparent mode and an Epson printer driver installed, your partial printouts are destined to become a thing of the past.

Q *Is the Commodore 1581 3½-inch disk drive compatible with GEOS 64? Can disk commands, like formatting and validating, be issued to a 1581 from within GEOS? Will all GEOS software work from a 1581?*

—CHRIS JOHN RAMAGLIA, MD
SAN MIGUEL DE ALLENDE
MEXICO

A Let's clarify any confusion surrounding GEOS and the 1581 once and for all: GEOS 2.0 for the 64 and GEOS 2.0 for the 128 both work fine with the 1581. The 2.0 is the only version of GEOS that offers 100 percent 1581 compatibility. Earlier versions appeared before 1987, when the 1581 was first produced.

All disk commands work on the 1581, provided GEOS 2.0 is used. All GEOS applications, games and utilities also work fine from a 1581. In fact, GEOS 2.0 works so well with the 1581 that I use it as my primary 1581 file-copy utility.

Here's a little-known trick that I've used for making backups of non-GEOS files from 5¼-inch 1541/1571 format to 3½-inch 1581 format: Simply place a non-GEOS disk in the 1571 source drive and select "no" when asked to convert it to GEOS format. Then use the multi-file copy technique outlined in the answer to the first question above to quickly make backup copies of those files. ■

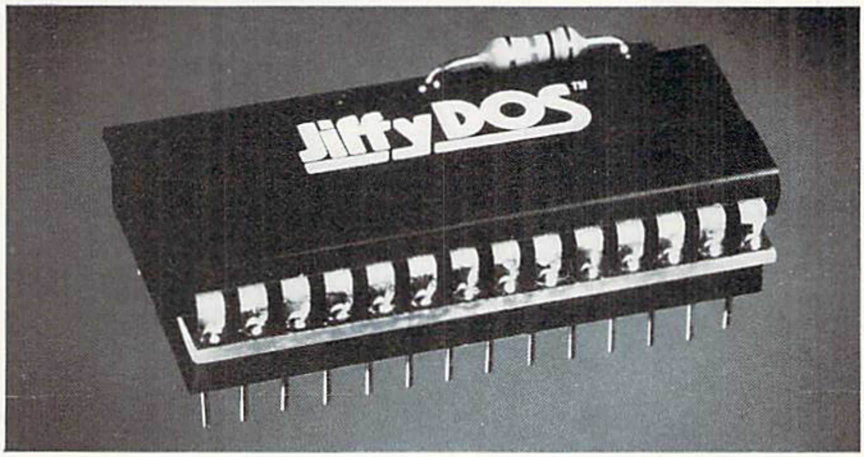
Tim Walsh, RUN's *technical manager and Magic columnist, is also a GEOS enthusiast and our resident printer expert.*

HARDWARE GALLERY

Boost your drive's speed even more dramatically with this upgraded version of JiffyDOS.

JIFFYDOS .... A+

Speed and Versatility Are the Keynotes Of This Update



The weak link in Commodore 8-bit systems has always been the disk drives. They are slow, the 1541 brutally so. This inadequacy has resulted in the emergence of various means of increasing disk-access speed, the most popular of which has been a cartridge plugged into the computer's cartridge port. The arrival of the RAM expansion unit, however, made this a less than ideal solution. The two pieces of hardware could not easily co-exist; you usually had to remove one in order to use the other.

Enter Creative Micro Designs with an elegant solution called JiffyDOS. Rather than adding a plug-in cartridge to your system, you upgrade it by making chip replacements to both the Kernal ROM in your computer and the DOS ROM in your disk drive(s). This results in decreased load times while leaving the cartridge port open.

JiffyDOS requires that you open up both your computer and disk drive. This obviously voids any warranties that are in force, and hence is probably not an operation you want to make on new equipment. However, since there are fewer new C-64s and no new C-128s entering the market, this won't be a problem for most people much longer.

The instructions for making the chip replacements are clear, complete and easy to follow. One piece of advice—take your time. I ran into some problems, but they were my own fault, not that of the product. Before inserting the chip, make sure the pins line up with the holes in the socket, lest you end up, as I did, with a chip resembling a bowlegged caterpillar.

The replacement process is fast; two drives and a 128 took me less than 45 minutes. Once you've replaced the chips, the final step is to drill a hole in the side of your computer for a small toggle switch, permitting you to turn JiffyDOS off and on. Put the case back together, and you're in business.

Creative Micro Designs has released a sixth version of their product, with enhancements that include a two-drive file copier, a printer/screen output toggle, the ability to adjust the sector interleave, full support of an REU running under RAMDOS, programmable function keys in 64 mode, and automatic sensing of uppercase/graphics and lowercase print modes during screen dumps.

REPORT CARD

A Superb!
An exceptional product that outshines all others.

B Good.
One of the better products available in its category. A worthy addition to your hardware collection.

C Average.
Lives up to its billing. No major hassles, headaches or disappointments here.

D Poor.
This product has some problems. There are better on the market.

E Failure.
Many problems; should be deep-sixed!

The DOS ROM and Kernal ROM chips supplied with JiffyDOS version 6.0 incorporate all of the latest upgrades from Commodore. They are also compatible with any other chip upgrades that you might have made to your system. For instance, over the years, my 128 has acquired a Basic 8 chip, as well as a 64K video chip. Both worked without a hitch after the JiffyDOS 6.0 installation. If you encounter a program that balks at the presence of JiffyDOS, simply flipping the toggle switch mentioned above reverts your setup to a stock system.

The first thing you'll notice with JiffyDOS is that it changes the function keys. Gone are the graphics, screen clear and monitor commands. In their place are definitions that let you scratch a file and list a Basic program or a text file from disk. The function keys work in both 64 and 128 modes.

The additional commands in JiffyDOS provide you with the power to redefine your default drive, dump a text screen to a printer, redirect all output from the screen to a printer, un-New a program, freeze a program listing and list a program one line at a time. There is also a command disabling the infamous 1541 head banging that occurs when disk errors are read.

As nice as all of this is, the main reason for purchasing JiffyDOS is to speed up ►

AUTHORIZED SERVICE CENTER

1750 $179.95
(512K RAM EXPANSION FOR C-128)
1581 $199.00
CALL FOR PARTS
1541 / 1571
ALIGNMENTS $35 / $45
64C REPAIR $45.00

WE CARRY A COMPLETE LINE OF COMMODORE. DISCOUNTS FOR SCHOOLS.

AMIGA

AMIGA 500 CPU (REPAIR) $65.00

WE RESERVE THE RIGHT TO REFUSE SERVICE ON EXCESSIVELY DAMAGED UNITS.

AMPEX SYSTEMS, INC.
5344 JIMMY CARTER BLVD.
NORCROSS, GA 30093
(800) 962-4489 orders only
(404) 263-9190

Circle 71 on Reader Service card.

Attention Foreign Computer Stores/Magazine Dealers

You have a large technical audience that speaks English and is in need of the kind of microcomputer information that IDG Communications/Peterborough provides.

Provide your audience with the magazines they need and make money at the same time. For details on selling *AmigaWorld, RUN, PC Games, Portable Computer Review, PC Resource* and *inCider* contact:

Marjorie Rubin
Boarts International
747 3rd Avenue
New York, NY 10017
Phone: (212) 688-2778

loading times. Does it? Yes, very much. While the effects of JiffyDOS 6.0 vary according to the drive, the mode in which you're using it and the individual program, there are any number of situations where the increased efficiency is nothing short of awesome.

The presence of JiffyDOS 6.0 is felt most profoundly when you're using a 1541 drive (or a 1571 in 1541 mode) with a C-64 or a 128 in 64 mode. When used in configurations other than these, JiffyDOS usually has some impact, although not as dramatic. In some situations, it has little or no effect—on a program such as GEOS, for example, which has a built-in, fast-load routine that bypasses the Kernal.

Table 1. Sample load times.

C-128 in 128 mode	Stock 1571	Stock 1581	With JiffyDOS 1571	With JiffyDOS 1581
Pocket Filer 2	1:02 min	— —	1:02 min	— —
180-block data file	:49 sec	:32 sec	:30 sec	:26 sec
Fontmaster 128	:32 sec	:20 sec	:30 sec	:20 sec
BobsTerm Pro 128	:30 sec	:23 sec	:30 sec	:18 sec
Trinity (game)	2:51 min	— —	1:39 min	— —
Beyond Zork (game)	2:12 min	— —	1:38 min	— —

C-128 in 64 mode	Stock 1571 in 1541 mode	Stock 1581	1571 in 1541 mode with JiffyDOS	With JiffyDOS 1581
EasyScript	1:02 min	— —	:31 sec	— —
RUN Script 64	:48 sec	— —	:10 sec	— —
Multiterm 64	1:22 min	— —	:32 sec	— —
Xmobuf 7.4 (terminal program)	:51 sec	— —	:10 sec	— —
PHM Pegasus (game)	2:48 min	2:21 min	:33 sec	:32 sec
International Karate II (game)	2:25 min	1:56 min	:37 sec	:30 sec
Archon (game)	3:13 min	— —	1:15 min	— —

Even programs that don't seem to respond to the presence of JiffyDOS can sometimes get a performance boost. Ways to accomplish this can range from simply copying a file to a JiffyDOS formatted disk, to the more complicated task of adjusting the sector interleave on a 5¼-inch floppy (which has no effect on a 1581 drive). Simply put, the latter operation means adjusting the physical distance between blocks of a file to optimize access time. This entails a bit of experimentation, but the instructions to perform the task are quite clear.

The changes in JiffyDOS 6.0 have been made in the Kernal ROM, not the DOS ROM, so owners of earlier versions only have to change the chips in their computers, not their drives, to obtain the benefits of the latest edition. The cost for JiffyDOS owners to upgrade is $36.95 for the C-64 and $49.95 for the C-128. The package includes the Kernal ROM and one DOS ROM. There is also a trade-in policy: Return your old JiffyDOS Kernal, and the price drops to $19.95 and $29.95 for the 64 and 128, respectively. For first-time buyers, the prices are $59.95 for the 64 and $69.95 for the 128.

JiffyDOS version 6.0 does what it's supposed to, and does it well. No, it won't decrease the loading times for all programs, but in many of those cases nothing else will either. JiffyDOS coexists with all other equipment, doesn't affect copy protection schemes, offers a nice selection of extra commands and, best of all, leaves your cartridge port free. Add to this a company that provides excellent customer support, and you have a combination that's hard to beat. Now that I've used JiffyDOS, I'll never give it up. *(Creative Micro Designs, PO Box 789, Wilbraham, MA 01095.)*

—MICHAEL CAVANAUGH
LEVITTOWN, PA ■

1989 INDEX

TITLE	AUTHOR	ISSUE	PAGE	COMPUTER
APPLICATIONS				
2001: A Calendar Program*	Huebner	Jan	40	C-64
Address, Please?*	Hansen	Feb	36	C-128
A Love-ly Idea*	Borden	Feb	66	C-64
Calorie Counter*	Broussard	Jun	28	C-64; C-128
Quick Writer 128*	Morris	Jun	53	C-128
Label Base*	Kodadek	Aug	28	C-64; C-128
Day-of-the-Week Calendar*	Schwartz	Sep	40	C-64; C-128
EDUCATIONAL GAMES				
Arithmetic-Tac-Toe*	Brantner	May	34	C-64
Type Invaders*	Brantner	Jun	34	C-64
A–Z Scramble*	Melcher	Jul	30	C-64
GAMES				
Raising Rainbows*	Wilson	Jan	66	C-128
Chummy Checkers*	Brantner	Feb	46	C-64
Kalah*	Broussard	Mar	42	C-64; C-128
Roll Them Bones*	Cook	Apr	35	C-64
Box Scores*	Murtagh	May	41	C-64
Solitaire Extraordinaire*	Broussard	May	53	C-128
Flight of the Condors*	Jamshidi	Jun	44	C-64
Cubix 1*	Morris	Jul	32	C-128
Memory in Motion*	Huebner	Aug	41	C-64
Thoroughbird Racing*	McMenamin	Aug	46	C-128
Fast-Food Frenzy*	Adams	Aug	51	C-64
Word Wonder*	Scott	Sep	42	C-64; C-128
Shell Shock*	Adams	Sep	46	C-64
Match Games*	Morris	Sep	53	C-128
Maze Run*	Shields	Oct	32	C-64
Wall $treet 128*	Ballard	Nov	64	C-128
Gold Mine (column's first appearance)	Sander	Dec	62	C-64; C-128
GENERAL INTEREST				
What Do You Do with a Dead C-64?	Brisson	Jan	34	
Computerized News: Television Takes the Plunge	Frajkor	Feb	34	
Gumballs and Alarm Clocks	Brown, L.	Feb	42	
℞ for Healthy Computing	Brown, L.	Apr	26	
Journey to the Center of Your Disk Drive	Rule	Apr	53	
At Your Service?	Lovhaug	May	26	
Truant No Longer?	Weiner	Jun	59	
Sculptor, Lawyer, Editor-in-Chief	Brown, L.	Aug	24	
Computers Making Computers	Dyer	Aug	27	C-64
Journey to the Center of Your C-128D	Rule	Aug	36	
The Entertainer	Guerra	Oct	26	
Ten Top Games	*RUN* editors	Dec	35	
In Search of Productivity Software	Rule	Dec	38	C-64; C-128
Packing a Punch	Cavanaugh	Dec	40	C-128

►

1989 INDEX

TITLE	AUTHOR	ISSUE	PAGE	COMPUTER
GEOS				
geoFolks	Rule	Sep	26	
Berkeley and its geoPlans	Rule	Sep	30	
geoSlides*	Buckley	Sep	34	C-64; C-128
GRAPHICS				
Trace the Light Fantastic*	Orcutt	Feb	58	C-64
RUN Paint*	Rockefeller	Mar	24	C-64; C-128
RUN Paint Primer	Hastings-Trew	Mar	32	
3-D Surfaces*	Corfman	Oct	46	C-128
The Nuts and Bolts of GEOS to RUN Paint	Walsh	Nov	39	C-64; C-128
Deep C-64 World*	Huebner	Nov	69	C-64
Graphmaker*	Franzel	Dec	46	C-64; C-128
Season's Greetings*	Gardner	Dec	52	C-128
HARDWARE REVIEWS				
Trigger-Happy	Walsh	Feb	28	
Power Drive	Amaya	Feb	62	C-64; C-128
Star Micronics' NX-1000 Multi-Font, NX-1000C Multi-Font, NX-1000 Rainbow and NX-1000C Rainbow printers	Walsh	Apr	60	
Avoid Service Hassles with Computer Saver	Premack	May	29	
A Dynamite Combo!	Wallace	Jul	19	
Two Low-Cost Alternatives	Lovhaug	Jul	23	
Making an Impression with Printers	Walsh	Nov	34	
HELPING HANDS				
Index to *RUN*'s 1988 Articles and Reviews		Jan	86	
RUN's Checksum Program	Kodadek	Jan–Dec		C-64; C-128
Learn To Walk Before You RUN		Jan/Feb	65/90	
Troubleshooting Troublesome Type-ins	Walsh	May	38	
Commonsense Approach to Computing		May	69	
Type-in Troubles?		Jun/Jul	58/60	
PROGRAMMING				
Screen Basic*	Ryan	Jan	72	C-64
One Step Beyond Basic	Kevelson	Feb	74	
Anatomy of Calculations*	Butterfield	May	44	C-64; C-128
Build a Better Basic	Weisgarber	Nov	58	C-64
128 Mode (column's first appearance)	Jordan	Dec	59	C-128
SOFTWARE REVIEWS				
Red Storm Rising	Guerra	Jan	20	C-64
Infocomics	Sodaro	Jan	20	C-64
The Write Stuff, C-128 Version	Premack	Jan	22	C-128
Where in Europe is Carmen Sandiego?	Poggiali	Jan	24	C-64
Monopoly	Kimball	Jan	25	C-64
Napoleon in Russia—Borodino 1812	Wright	Jan	26	C-64
Stocker	Wasser	Jan	26	C-64
The Friendly Computer	Chasen	Jan	28	C-64
Rush 'N Attack/Yie Ar Kung-Fu	Latocha	Jan	28	C-64
Sons of Liberty	Guerra	Jan	28	C-64
Deep Space	Ryan	Jan	28	C-64
The Bard's Tale III: Thief of Fate	Guerra	Jan	28	C-64
Questron II	Guerra	Jan	30	C-64
Battle Droidz	Hurlburt	Jan	30	C-64
Games Gallery (column's first appearance)		Jan	78	
Bubble Bobble	Latocha	Feb	20	C-64
Pro Tutor Accounting	Jerome	Feb	20	C-128
Bubble Ghost	Guerra	Feb	22	C-64

1989 INDEX

TITLE	AUTHOR	ISSUE	PAGE	COMPUTER
Platoon	Wasser	Feb	22	C-64
Zak McKracken and the Alien Mindbenders	Brown, L.	Feb	23	C-64
Macro Set 1	Broussard	Feb	24	C-64
Road Runner	Guerra	Feb	24	C-64
Cosmic Relief	Guerra	Feb	25	C-64
Star Rank Boxing II	Wasser	Feb	26	C-64
Might and Magic's Book One: Secret of the Inner Sanctum	Hurlburt	Feb	26	C-64
Sinbad and the Throne of the Falcon	Hurlburt	Feb	26	C-64
Club Backgammon	Guerra	Feb	26	C-64
Scruples	Ryan	Feb	26	C-64
NavCom6	Ryan	Feb	26	C-64
Master Ninja	Latocha	Feb	27	C-64
Tower Toppler	Guerra	Mar	16	C-64
Out Run	Latocha	Mar	16	C-64
Ocean Ranger	Guerra	Mar	18	C-64
Fast Break	Wasser	Mar	18	C-64
Barbarian	Poggiali	Mar	20	C-64
The Maestro	Guerra	Mar	20	C-64
Ticket to Hollywood	Latocha	Mar	21	C-64
Rastan	Cavanaugh	Mar	21	C-64
Boot Camp	DiPrete	Mar	21	C-64
Enlightenment	DiPrete	Mar	21	C-64
Many Happy Returns	Jerome	Mar	36	C-64; C-128
Caveman Ugh-Lympics	Ryan	Apr	18	C-64
Mavis Beacon Teaches Typing	Brown, L.	Apr	18	C-64
Who Framed Roger Rabbit?	Brown, L.	Apr	20	C-64
Wizardry II: Knight of Diamonds	Weiner	Apr	20	C-64
Take Down	Latocha	Apr	21	C-64
GEOS Writer 64	Cavanaugh	Apr	22	C-64
Jet-Boys	Guerra	Apr	23	C-64
Mars Saga	Ryan	Apr	24	C-64
Faery Tale Adventure	Kimball	Apr	24	C-64
Alcon	DiPrete	Apr	24	C-64
Pool of Radiance	Guerra	Apr	24	C-64
Dungeon Masters Assistant, Volume I: Encounters	Ryan	Apr	25	C-64
Neuromancer	Kimball	May	14	C-64
Arcade Game Construction Kit	Poggiali	May	14	C-64
Aussie Joker Poker	Guerra	May	16	C-64
Captain Blood	Ryan	May	16	C-64
Typhoon of Steel	Guerra	May	18	C-64
Battleship	Sodaro	May	18	C-64
Alien Syndrome	Poggiali	May	19	C-64
Serve & Volley	Wasser	May	19	C-64
TKO	Ryan	May	19	C-64
Rocket Ranger	Sodaro	May	20	C-64
Renegade	Poggiali	May	20	C-64
Corruption	Kimball	May	20	C-64
Clubhouse Sports	Wasser	May	20	C-64
Rampage	Latocha	Jun	18	C-64
1581 Toolkit	Cavanaugh	Jun	18	C-64; C-128
Grand Prix Circuit	Ryan	Jun	20	C-64
Pocket Author	Broussard	Jun	22	C-64
Zoom!	DiPrete	Jun	22	C-64
Designasaurus	Latocha	Jun	22	C-64
Technocop	Latocha	Jun	24	C-64
Rack 'Em	Guerra	Jun	24	C-64
Predator	DiPrete	Jun	24	C-64
Annals of Rome	Sodaro	Jun	24	C-64
John Elway's Quarterback	Wasser	Jun	25	C-64
Star Wars	Latocha	Jul	11	C-64
Holidays and Seasons	Grubbs	Jul	11	C-64

►

1989 INDEX

TITLE	AUTHOR	ISSUE	PAGE	COMPUTER
Jack Nicklaus' Greatest Eighteen Holes	Guerra	Jul	12	C-64
720°	Latocha	Jul	12	C-64
Chop 'n' Drop	Poggiali	Jul	13	C-64
Double Dragon	Wasser	Jul	13	C-64
Contra	Latocha	Jul	14	C-64
Purple Heart	DiPrete	Jul	14	C-64
Victory Road	DiPrete	Jul	14	C-64
Hometown, U.S.A.	Grubbs	Aug	15	C-64
Operation Wolf	Latocha	Aug	16	C-64
Space Station Oblivion	Guerra	Aug	16	C-64
StoryWriter 128	Premack	Aug	16	C-128
SimCity	Poggiali	Aug	18	C-64
Powerplay Hockey: USA vs. USSR	Sodaro	Aug	18	C-64
Uninvited	Poggiali	Aug	20	C-64
Battles of Napoleon	Wright	Aug	20	C-64
Mind Roll	Sodaro	Aug	20	C-64
Jordan vs. Bird: One on One	Guerra	Aug	21	C-64
Word Writer 4	Bayles	Sep	16	C-64
Keith Van Eron's Pro Soccer	Guerra	Sep	16	C-64
Pharaoh's Revenge	Latocha	Sep	18	C-64
Time and Magik	Guerra	Sep	18	C-64
The Honeymooners	Brown, L.	Sep	19	C-64
Willow	Poggiali	Sep	20	C-64
Navy Seal	Ryan	Sep	20	C-64
Demon's Winter	Guerra	Sep	20	C-64
Hole-in-One Miniature Golf	Latocha	Sep	21	C-64
Firezone	Guerra	Sep	21	C-64
BattleTech	Kimball	Sep	21	C-64
First Over Germany	Poggiali	Sep	21	C-64
High/Scope Survey of Early Childhood Software	Brown, L.	Oct	16	
Comp-U-Solve	Pratt	Oct	16	C-64
Rocky's Boots	Mintz	Oct	18	C-64
Gertrude's Secrets	LePage	Oct	20	C-64
Letter-Go-Round	Latocha	Oct	20	C-64
Colonial Times Databases	Weiner	Oct	22	C-64
The Incredible Laboratory	Weiner	Oct	22	C-64
Fractions: An Introduction; Math Football: Percent	Pratt	Oct	24	C-64
Story Builder: Parts of Speech in Context	Weiner	Oct	60	C-64
Mammoth Meltdown; Essential Punctuation	Poggiali	Oct	60	C-64
Electric Company Learning Library	Latocha	Oct	62	C-64
Dinosaurs Are Forever	Latocha	Oct	64	C-64
Freddy's Puzzling Adventures	DiPrete	Oct	66	C-64
Hollywood Squares	Hurlburt	Nov	24	C-64
Chomp!	Latocha	Nov	24	C-64
Thunder Blade	Guerra	Nov	26	C-64
RoboCop	Hurlburt	Nov	26	C-64
Destroyer Escort	Guerra	Nov	26	C-64
Baal	DiPrete	Nov	28	C-64
Sky Shark	Gates	Nov	28	C-64
Speedball	Latocha	Dec	22	C-64
Axe of Rage	Guerra	Dec	22	C-64
Titan	DiPrete	Dec	24	C-64
Tangled Tales	Guerra	Dec	24	C-64
✓Book	Jerome	Dec	26	C-64; C-128
Double Dare	Latocha	Dec	26	C-64
California Pro Golf	Poggiali	Dec	26	C-64
Devon Aire in The Hidden Diamond Caper	Poggiali	Dec	28	C-64
Last Ninja 2	Ryan	Dec	28	C-64
Combat Course	DiPrete	Dec	30	C-64
The Magic Candle	Kimball	Dec	30	C-64
The Crack of Doom	Poggiali	Dec	30	C-64
War in Middle Earth	Poggiali	Dec	30	C-64

►

JASON-RANHEIM

CARTRIDGE MATERIALS FOR YOUR COMMODORE 64 or 128

Quality Products from the World Leader!

- Promenade C1 EPROM Programmer
- Game Type Cartridges
- Bank Switching Cartridges
- RAM/ROM Combination Cartridges
- Capture Archival Cartridge System
- Cases, EPROMS, Erasers, Etc.

Call or write for complete information!

Call Toll Free	800-421-7731
from California	916-878-0785
Tech Support	916-878-0785

JASON-RANHEIM
3105 Gayle Lane
Auburn, CA USA 95603

Circle 202 on Reader Service card.

VIDEO BYTE II the only FULL COLOR! video digitizer for the C-64, C-128

Introducing the world's first **FULL COLOR!** video digitizer for the Commodore C-64, 64-C, C-128, & 128-D computer. **VIDEO BYTE** can give you digitized video from your V.C.R., LASER DISK, B/W or COLOR CAMERA or OFF THE AIR or CABLE VIDEO (thanks to a fast! 2.2 sec. scan time). New version 3.0 software features full **RE-DISPLAY** with **MULTI CAPTURE MODE, BUILTIN PRINTING MODE, EXPANDED COLORIZING MODE, FREEZE COLOR** feature and much, much more!

FULL COLORIZING! Is possible, due to a unique SELECT and INSERT color process, where you can select one of 15 COLORS and insert that color into one of 4 GRAY SCALES. This process will give you over 32,000 different color combinations to use in your video pictures.
SAVES as KOALAS! Video Byte II allows you to save all your pictures to disk as FULL COLOR KOALA'S. After which (using Koala or suitable program) you can go in and redraw or color your V.B. pic's.
LOAD, DISPLAY & PRINT Video Byte II allows you to load, display & print all **VIDEO BYTE or KOALA** pictures from Video Byte's menu.
MENU DRIVEN! Video Byte II comes with easy to use menu driven UTILITY DISK with V3.0 video digitizer program. (64 MODE ONLY).
COMPACT! Video Byte II is compact! In fact no bigger than most cartridges! VB II **(plugs into MODEM PORT)** comes with 3′ cable.
INTEGRATED! Video Byte II is designed to be used with or without EXPLODE! V5.0 color cartridge. Explode! V5.0's menu will return you to VIDEO BYTE II's menu. EXPLODE! V5 is the **PERFECT COMPANION!** AT ONLY **$44.95** or W/DISABLE SWITCH **$49.95.**
FREE! Video Byte II users are automatically sent **FREE SOFTWARE** updates along with new documentation, when it becomes available.
PRINT! Video Byte II will printout **VB or KOALA pictures** in 4 GRAY SCALE to most printers. However when used with Explode! V5.0 your printout's can be done in FULL COLOR 8 by 11's SIDEWAYS on the **RAINBOW NX - 1000, RAINBOW NX - 1000 C, JX - 80, Seikosha 3000 AI. (OKIDATA 10/20's (print larger 6" by 9")**

ONLY $79.95

USER SLIDE SHOW program w/auto or manual display is standard with VIDEO BYTE program. And can be backed up! Why DRAW a car, airplane, person or for that matter . . . anything when you can **BYTE it. . . VIDEO BYTE it instead!**

All units come w/90 day WARRANTY. All orders add $3 for UPS BLUE LABEL S/H. UPS BLUE available only in 48 states. FOREIGN ORDERS are US FUNDS +$6.35 S/H. ORDER BOTH EXPLODE! V5 & VIDEO BYTE II together and receive FREE!! UPS S/H. ***Note all SALES are FINAL, 90 DAY WARRANTY covers PARTS & LABOR ONLY. All SOFT GROUP UTILITY DISKS COME w/built-in CATALOG of PRODUCTS.

*IN 64 MODE ONLY **TO ORDER CALL 1-708-851-6667** IL RESIDENTS ADD 6% SALES TAX PLUS $3.00 S/H. NO C.O.D.'S. FOREIGN ORDERS U.S. FUNDS ONLY $6.35 S/H. Personal Checks 10 Days to Clear

THE SOFT GROUP, P.O. BOX 111, MONTGOMERY, IL 60538

Circle 236 on Reader Service card.

WE WON'T PAY YOUR TAXES!

But **TAX MASTER** will help you compute them more QUICKLY and EASILY. Be the Master of your Income Taxes with **TAX MASTER**, now available for your 1989 Federal Income Taxes for the C-64/C-128 with single, twin or dual disk drive and optional printer.

- **NEW** Tax laws are covered.
- **FORMS 1040, 4562, & Schedules A, B, C, D, E & F.**
- **PERFORMS** all arithmetic **CORRECTLY.**
- **EASY CHANGE** of any entry with automatic **RECALCULATION** of the entire form.
- **TRANSFERS** numbers between forms.
- **CALCULATES** your taxes and **REFUND**. Tax tables are included.
- **SAVES** all your data to disk for future changes.
- **PRINTS** the data from each form.
- **CALCULATOR** function is built-in.
- **DISCOUNT** coupon toward the purchase of next year's updated program is included.

TAX MASTER. . . . .(ON DISK) . . . . ONLY $32.00

TIRED OF SWITCHING CABLES?

VIDEO MASTER 128 provides continuous 80 column color (RGBI), 80 column monochrome and audio out. Switch between 80 column monochrome and 40 column color for composite monitor. Use up to 4 monitors at once! Includes composite cable.

VIDEO MASTER 128 . . . . . for Commodore 128 . . . . . $39.95

GET HELP WITH BASIC PROGRAMMING

HELP MASTER 64 provides instant On-Line Help screens for all 69 BASIC commands when you need them. Takes no BASIC RAM. No interference with loading, saving, editing or running BASIC programs. Works with YOUR BASIC programs.

HELP MASTER 64 . . . . .for Commodore 64, 64C $19.95
With 368-page BASIC reference, add. $5.00

OTHER MASTER SOFTWARE ITEMS

RESET MASTER C-64 (not 64C) reset switch w/2 serial ports	**$ 24.95**
CHIP SAVER KIT protects computer's chips from static electricity	**5.95**
MODEM MASTER user port extender **$29.95; MODEM MASTER PLUS** w/reset	**34.95**
Y-NOT? 6-foot serial Y cable, 1 male, 2 female connectors	**15.00**
Y-YES! 6-foot serial Y cable, 3 male connectors	**15.00**
C-128 80 col. monochrome cable for non-RGB monitor	**9.00**
Disk Notcher—lets you use both sides of disk	**6.00**
64-TRAN The only Fortran compiler for C-64/64C	**50.00**

Send for Free Catalog

MASTER SOFTWARE
6 Hillery Ct.
Randallstown, MD 21133
(301) 922-2962

ADD $2.00 per order shipping & handling US and Canada, $7.00 foreign. All prices in US Dollars. Canadian orders use Canadian POSTAL money order. Maryland residents add 5% tax. Dealer inquiries welcome!

Circle 136 on Reader Service card.

COLOR RIBBONS & PAPER

COLOR RIBBONS

RED, BLUE, GREEN, BROWN, PURPLE, YELLOW

Ribbons	Price Each	Black	Color	Heat Transfer
Brother M1109		4.95	5.95	7.00
C. Itoh Prowriter Jr.		7.00	9.00	–
Citizen 120D/180D		5.00	6.00	7.95
Commordore MPS 801		4.50	5.25	5.75
- MPS 802/1526		6.25	7.25	–
- MPS 803		4.95	5.95	7.00
- MPS 1000		3.95	4.95	6.75
- MPS 1200/1250		5.00	6.00	7.95
- 1525		6.50	8.00	–
Epson MX80/LX800		3.75	4.25	6.75
Okidata 82/92		1.75	2.25	4.50
Okidata 182/192		6.50	7.50	6.00
Panasonic K-XP 1080		6.75	7.75	–
Seikosha SP 800/1000		5.25	6.50	7.95
Star SG10		1.75	2.25	4.50
Star NX10/NL10		5.00	6.00	7.95
Star NX1000		4.50	5.50	6.75
Star NX1000C – 4-Color		–	8.75	–

COLOR PAPER

BRIGHT PACK –
200 Sheets/50 ea. color: Red, Blue, Green, Yellow. 9 1/2 × 11 – $11.90/pk.

PASTEL PACK –
200 Sheets/50 ea. color: Pink, Yellow, Blue, Ivory. 9 1/2 × 11 – $11.90/pk.

COLOR BANNER,
PARTY BANNER,
CHRISTMAS BANNER,
HAPPY B-DAY BANNER,
CONGRAT'S BANNER –
45′/Roll – $9.95/Ea. Roll

COLOR CERTIFICATE PAPER –
100 Shts./Pk. – $9.95/Pk.

GREETING CARDS –
50 Cards & 40 Env./Pk. – $11.95/Pk.

T-SHIRT RIBBONS (Heat Transfer) – Call For Price & Avail.
COLORS: Red, Blue, Green, Brown, Purple, Yellow, Black

COLOR DISKETTES

5 1/4" DS/DD Rainbow Pack. 10/pack – $12.50

For ribbons & paper not listed above, call for price. Price & spec. subject to change w/o notice. Min. order $25.00. S & H $3.50 minimum. Visa, M.C., C.O.D.

RAMCO COMPUTER SUPPLIES
P.O. Box 475, Manteno, IL 60950 U.S.A.
(U.S.A.) 800-522-6922 • (Canada) 800-621-5444
815-468-8081

Circle 232 on Reader Service card.

1989 INDEX

TITLE	AUTHOR	ISSUE	PAGE	COMPUTER
TELECOMMUNICATIONS				
Caribe Bein'	Ryan	Nov	50	
Non-Habitat Forming	Ryan	Nov	51	
UTILITIES				
Demystifying DOS	Ryan	Jan	50	
Multitasking Comes to the C-64*	Ingrassia	Jan	56	C-64
Program Your Mouse and RAM Expander*	Brown, T.	Feb	54	C-64; C-128
The MS-DOS Connection*	Garamszeghy	Apr	30	C-128
The Multitasking Factor*	Butterfield	Apr	42	C-64; C-128
MS-DOS Disks to Order*	Garamszeghy	May	30	C-64; C-128
The MS-DOS/C-64 Connection*	Garamszeghy	Jun	37	C-64
RUN Shell*	Ryan	Jul	26	C-64; C-128
A Better Mousetrap*	Brown, T.	Jul	36	C-64; C-128
Quikmat*	Hughes	Sep	50	C-64
Functional Keys*	Little	Oct	40	C-64
Friendly File Copier*	Parry	Nov	42	C-64
Get a Load of This!*	Miller	Dec	44	C-64

* Available on the bimonthly ReRUN disks, along with other programs from *RUN* and special bonus programs. To order, see the insert card at page 36.

Index of 1989 RUN AMOK Corrections

TITLE OF CORRECTED ARTICLE	PUBLISHED	PAGE	—CORRECTION PUBLISHED— MONTH	PAGE
Panel Maker	Nov '88	50	Feb	71
Crazy Caverns	Dec '88	48	Feb	71
Tag 'Em	Special Issue #5	66	Apr	72
Knock on Wood	Jan '89	12	Apr	72

Bonus programs that appear on 1989 ReRUN disks but were not published in *RUN* magazine

TITLE/DESCRIPTION	ReRUN ISSUE	COMPUTER
Multicolor Editor 64/Redefines the C-64 character set	Jan–Feb	C-64
Crabbie/Arcade game	Mar–Apr	C-128
Kidnapped!/Arcade game	Mar–Apr	C-64
Betweens/Strategy game	May–Jun	C-128
C-64 Animation Maker/See your own sprites in action	May–Jun	C-64
Storybook 64/Create computerized storybooks	Jul–Aug	C-64
Budget Plus/Keep track of your finances	Jul–Aug	C-128
The Battle/Strategy game	Sep–Oct	C-128
Customizer: A GEOS 120-dpi Printer Driver	Sep–Oct	C-64; GEOS 64
The Caroling Commodore/Christmas carols	Nov–Dec	C-128
Wraparound/Puzzle game	Nov–Dec	C-64
The Family Tree/Genealogy program	Nov–Dec	C-64

■

3 TECHNICAL PROGRAMS

Linear Programmer

Maximize: $Z = 2X_1 + X_2$

Subject to:

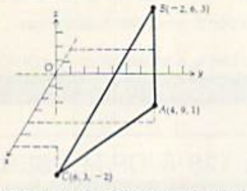
$3X_1 + X_2 < 44$

$X_2 < 10$

$X_1 + X_2 < 18$

$2X_1 + 5X_2 < 60$

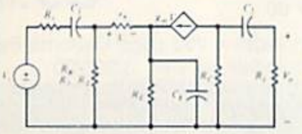
Solves linear programming problems of up to 50 variables and 35 constraints. Systems may be restricted by constraints of *equality, less than* or *greater than*, (different types may appear in the same problem). Objective (Z function) may be maximized or minimized. Computer displays solution (in example at left, $Z = 31$, $X_1 = 13$, $X_2 = 5$). Initial and final tableaus. Special command for easy entry of sparse contraints.



Analytical Geometry in 3 Dimensions

Solves numerical geometry problems like those found in college level analytical geometry text books. After entering point lines, planes and vectors, users may then calculate. Vector cross, dot, triple and scaler products. $\overrightarrow{A} \times \overrightarrow{B}$, $\overrightarrow{A} \bullet \overrightarrow{B}$, $\overrightarrow{A} \times \overrightarrow{B} \bullet \overrightarrow{C}$, $s\overrightarrow{A}$; find the angle between 2 lines, vectors or planes; find intersection of 3 planes, 2 planes, line and a plane; find a plane through 3 points, a point and a line, point and normal point and parallel plane,or perform 18 other geometric calculations. Entries made and answers displayed in users choice of several methods, including symetric equation, parametric equation, multiple points, direction and magnitude.

(NOT A GRAPHICS PROGRAM)



Electronics: AC DC Circuit Analysis Programs

Program computes general numeric solution to electronic circuit of up to 40 nodes and 63 branches. Branches may contain resistors, capacitors, inductors, current sources, voltage sources or 4 types of controlled sources. Computer displays node voltages, branch voltages, currents, powers and power factors. Step function of branch parameters or frequency with graphic display of results. Menu controlled and user friendly.

Linear Programming System (64/128)	$24.95
Analytical Geometry in 3 Dimensions (64/128)	$24.95
Electronics AC DC Circuit Analysis (64/128)	$29.95
Electronics AC DC Circuit Analysis (IBM PC)	$29.95

Computer Heroes
PO Box 79 Dept. 890
Farmington, CT 06034
Orders Only 1-800-622-4070

RUN AMOK

Item: In line 1230 of the listing for "Wall $treet 128" (November 1989, p. 66), you must substitute the word REM for the words "BLOCKS FREE.", or the program will hang up at that point. Also, line 254 is too long, by one character, for the computer to accept. To make the line shorter, substitute a question mark for the first Print command in the line.

Item: In the last paragraph of the documentation for "Get a Load of This!" (December 1989, p. 44, and the November–December ReRUN booklet, p. 13), quotation marks were inadvertently omitted after the asterisk in the Load command. It should read ":*",8:.

BIG BLUE READER 128/64

MS–DOS File Transfer Utility

New Version III

Big Blue Reader transfers word processing, text and ASCII files between Commodore and IBM MS–DOS disks. ***1571 or 1581 Disk Drive is required. Does not work with 1541 drive.***

Fast and easy to use. Transfers MS–DOS files on 160K–360K 5.25" & 720K 3.5" disks; Including MS–DOS Sub–directories.

Big Blue Reader 128 supports: C–128 CP/M files, 17xx REU, 40 & 80 column modes, and much more.

(**Big Blue Reader 64** available separately only **$29.95**)

BIG BLUE READER 128/64 only $44.95

Order by check, money order, or COD.
Free shipping and handling. No credit card orders.
BBR 128/64 available as an upgrade to current users for $18 plus original BBR disk. Foreign orders add $4
CALL or WRITE for more information.

BIBLE SEARCH

Complete New Testament text and Concordance with very fast word search and verse display capabilities. Word(s) in text can be found and displayed in seconds. Includes both C64 and C128 mode programs. Please specify 1541, 1571 or 1581 formatted disk. (*Makes an excellent gift.*)

King James Version NT only $25
New International Version NT only $30

To order Call or write: **SOGWAP Software**
115 Bellmont Road; Decatur, IN 46733
Ph (219) 724–3900

GET MORE PLEASURE FROM THE BIBLE WITH **LANDMARK**

The Computer Reference Bible

Here's what LANDMARK will enable you to do:

- ✓ SEARCH THE BIBLE--Find Phrases, words or sentences.
- ✓ DEVELOP TOPICAL FILES--Copy from The Bible text and search results then add your own comments and notes.
- ✓ COMPILE YOUR PERSONAL BIBLE-- Outline texts in color. Add notes, comments, and references. Make your Bible Study organized and on permament record!
- ✓ CREATE FILES-- Then convert them for use with wordprocessors like Paperclip and GEOS.
- ✓ MAKE SUPPLEMENTARY STUDY FILES--For specific study and develop translation variations.

KJV or NIV ($10.00 royalty charge for NIV)

$119.95 plus $4.00 shipping in cont. U.S.A. $7.50 Canada

BOTH versions for $189.95 plus $10.00 NIV royalty plus shipping

v1.2 for **C64** and v2.0 for **C128**

CALL OR WRITE TODAY FOR A FREE BROCHURE

P.A.V.Y. Software P.O. Box 1584
Ballwin, MO 63022 (314) 527-4505

Circle 221 on Reader Service card.

RUN CLASS ADS

WIN LOTTO MILLION$!!!

NEW RELEASE! LOTTO PICKER™ PLUS v2.1

Lotto Picker™ Plus stores winning Lotto 6/7, Keno 10/11, & Pick 3/4 numbers & uses multiple statistical analysis (hot, cold, & unbiased numbers) to wheel what might be your million dollar ticket! Guaranteed to work for all Lotto-style games worldwide. Easy-to-use, fully documented, and not copy protected. Includes a database editor, programmable games, and much, much more! Never obsolete—Pays for itself! **$39.95** (Plus $2.55 S&H). **ORDERS: 1-800-634-5463 ext. 293. GE RIDGE SERVICES**, 170 Broadway, Suite 201-RS, New York, NY 10038. NY residents add sales tax. For IBM-PC & compatibles, PS/2, C64/128 & Apple II. Inquiries: 718-317-1961. IBM-Apple 3.5 inch—add $5.00.

NEW Version 2 Plus LOTTO PICKER RIDGE

REPLACEMENT CHIPS, PARTS & UPGRADES

Replacement/Upgrade Chips

6526	$12.25
6567	15.95
6510	10.95
6581	12.25
PLA	12.95
All 901 ROMs	10.95
And Many Others	
64 Hvy Dty Pwr Sup	$24.95

New upgrades—1MB "Fatter Agnus" #8372 . . $95.85. 1.3 Kickstart ROM . . $27.95 (both with simple 10 min. step by step instructions)

Prices subject to change

COMMODORE DIAGNOSTICIAN II™

Reference Aid #6

Just released. . .This newly updated Commodore Diagnostician II™ saves you money on Repairs & Downtime by promptly locating faulty IC chips on all Commodore computers and 1541 drives. Different sections contain "cross referencing" of chips and "block layout." (A schematic is included but not needed.) Over 14,000 "Diagnosticians" sold worldwide. . .See fantastic full page review in March '88 *Computer Shopper* Magazine. Price is $6.95 prepaid in US.

Send for catalog of exclusive new products

The Grapevine Group, Inc.
35 Charlotte Drive, Wesley Hills, NY 10977
1-800-292-7445 or 914-354-4448

Amiga Chips/Upgrades

8562 (Denise)	$49.95
8564 (Paula)	49.95
5719 (Gary)	17.25
8520A1	17.95
A501/8-512K RAM	109.50
68020/33	139.95
68881/16	76.95
68881/20	104.95
68882/16	104.95

Our catalog has Print Heads, RAM expan. cables, Diagnostics, Manuals, Pwr. Supplies, Ribbons, many other products.

Our 9th Year

FAX: 914-354-6696
Dealer pricing available

ATTENTION NAVIGATORS! YACHTSMAN!

AT LAST, a professional waypoint program for your Commodore 64! Let the amazing **EIGHT BELLS VOYAGER** help plan your next voyage! Enter up to 50 waypoints per file. Calculates RL and GC courses, distances, cumulative distances and distance to go at each WP. Steaming times, ETA and MUCH MORE! Also available, **EIGHT BELLS SIGNALMAN** deluxe flashing light tutor!

EIGHT BELLS VOYAGER (Disk) **$49.95** Remit check or MO only. Add $2 P&H per order.
EIGHT BELLS SIGNALMAN (Disk) **$19.95** Illinois res. please add 6.5% sales tax.

HEARTLAND MARITIME SOFTWARE
a division of Heartland Maritime Corporation
PO Box 25-RU, Herod, IL 62947-0025

DEPENDABLE SERVICE FOR YOUR COMMODORE!

C-64, 1541, C-128, or 1571: *FAST* *TURNAROUND!*

$25.00 PLUS PARTS

Send computer* or drive with name, address, phone, & describe problem. We'll call with parts estimate, then repair and return to you insured by UPS. Payment can be COD or VISA, M/C. Minimum charge, estimate only is $20. * Include power supply.

AUTHORIZED COMMODORE SERVICE CENTER
★ ★ ★ ★ ★
90 DAY WARRANTY ON ALL REPAIRS

TYCOM Inc. 503 East St. Pittsfield, MA 01201 (413) 442-9771

B.Sc. & M.S. in COMPUTER SCIENCE

The American Institute for Computer Sciences offers an in-depth correspondence program to earn your Bachelor of Science and Master of Science degrees in Computer Science at home. BSc. subjects covered are: MS/DOS, BASIC, PASCAL, C, Data File Processing, Data Structures & Operating systems. MS program includes subjects in Software Engineering and Artificial Intelligence.

AMERICAN INST. for COMPUTER SCIENCES
1704-RU 11th Avenue South
Birmingham, AL 35205
TOLL FREE 1-800-872-AICS

COMMODORE AMIGA SERVICE CENTER

AMIGA 500 (Repair) $65.00

C-64 (Repair) $39.95

C-128	$64.95
1541	49.95
1571	64.95
SX-64	69.95

includes parts/labor flat rate repair

CALL for Commodore Chips & Power Supplies at *low* prices.
24 Hour Turnaround

A&M Computer Repair
20 Guernsey Drive, New Windsor, New York 12550
1-800-344-4102 (914) 562-7271

NOW AVAILABLE FOR THE AMIGA!

The MicroFlyte JOYSTICK, the only fully proportional continuously variable joystick control for Flight Simulator II

". . .it transforms an excellent program into a truly realistic flight simulation system" B.A.C.E.

MICROCUBE PRODUCTS

Commodore 64/128

- MicroFlyte ATC Joystick $59.95
- Test/Calibration Disk: A diagnostic tool for your joystick . . . . $ 4.95

Amiga

- MicroFlyte Joystick—Plugs into the mouse port & works with most software . . . $119.95
- Analog Joystick . . . . $ 74.95

Include $4.00 shipping of joystick orders. FSII is a trademark of subLOGIC Corp.

MICROCUBE CORP., PO Box 488, Leesburg, VA 22075 (703) 777-7157

COMMODORE 128 & CP/M USERS

WORDSTAR ®

WORDSTAR V.2.26 or SuperCalc V.1.05 or WORDPAC (including Grammatic and Spellguard) or MBASIC with compiler, BASIC or FORTRAN 80. **$39.00 each**

Wordstar/SuperCalc/MBASIC includes a 763 page Osborne System Manual with extensive CP/M Tutorials as well. 3/$95.00

800-221-7372 Don Johnson
PDSC, 33 Gold St. L3, NYC, NY 10038

LEARN TO PLAY GUITAR

GUITAR TUTOR

Have you or a member of your family ever wanted to learn to play guitar? Let your computer teach you using this unique new program that allows you to learn at home at your own pace. Much less expensive than formal lessons, "GUITAR TUTOR" will have you playing in no time. Its time-tested methods made learning easy and fun. So impress your family and friends by becoming one of the many people that know the joy and satisfaction of playing the guitar well. Specify C-64 or C-128 and sent $29.95 to:

Northern Star Software, P. O. Box 63, Oak Creek, WI 53154
For MasterCard/Visa orders, call toll-free: 1-800-648-5286

C64/128 PUBLIC DOMAIN SOFTWARE

REQUEST FREE CATALOG or send $2 for sample disk and catalog (REFUNDABLE). Categories include education, utilities, games, business, PRINT SHOP graphics, pre-tested programs and more. Rent for $1 or buy as low as $1.50 per disk side or for 95¢ for 75 or more. $20 order gets 3 free disks of your choice.
NEXT DAY SHIPPING!

CALOKE INDUSTRIES (Dept BK)
PO Box 18477, Kansas City, MO 64133

COMMODORE 64-128

FINEST PUBLIC DOMAIN PROGRAMS
PRETESTED QUALITY PROGRAMS • $1.50 • ON DISK
YOU PICK THE PROGRAMS THAT **YOU** WANT!!!
FREE DISK FULL OF PROGRAMS WITH FIRST ORDER

FOR YOUR OWN LIST AND DESCRIPTION OF THESE PROGRAMS SEND JUST A SASE TO:

JLH CO.
DEPT A
BOX 67021
TOPEKA, KS 66667

ReRUN DISKS

Great software at affordable prices from *RUN* magazine. Each disk is packed with programs from the two most recent issues of *RUN*, plus never-before-published BONUS programs.

1-year subscription $69.97 (Single issue $16.47)
CALL TOLL-FREE **1-800-343-0728**

RUN CLASS ADS

COMMODORE SOFTWARE CLOSEOUTS

Name Brand Software at Super Low Pricing. All software is NEW and in Original Packaging! These are *not* public domain titles. Famous brands like ACTIVISION, INFOCOM, SSI, SPINNAKER, EPYX, SYNAPSE, BRODERBUND, AVLON HILL & Many More!!! **FREE** Price List. Most Priced Under $10. Many formats like IBM/Apple also!

COMPSULT
P.O. Box 3233
San Luis Obispo, CA 93403-3233
805-544-6616

√Book™

Your spreadsheet or data base doesn't really understand your personal checking!
Check out these features:

- √17 types of checking transactions
- √ Handles overdraft protection
- √ Remembers payees for fast entry
- √ Full screen editing and selective queries
- √ 8 types of reports plus check printing
- √ C64/40 col. and C128/80 col. programs
- √ Supports 1541/1571/1581 drives
- √ Schedules periodic transactions
- √ Custom transaction categories
- √ Monthly balancing
- √ Optional password protection
- √ Utilities with partition tools for sub-directories on 1581 drives
- √ Calculator, and more . . .

Computer Craftware • 17966 Arbolada Way • Tustin, CA 92680
(714) 953-8177 • $34.95+$2.50 S&H (CA res.' add 6¼%)

SAVE YOUR FAMILY!

Genealogy software with features to fit every budget and requirement: LINEAGES/Starter, LINEAGES/Standard, LINEAGES/Advanced, and our most comprehensive FAMILY ROOTS. Prices $29 & up. Data is compatible between systems and you may upgrade from one to another. Call for FREE information. Satisfaction guaranteed.

QUINSEPT, INC.
PO Box 216, Lexington, MA 02173
1-800-637-ROOT 617-641-2930

ATTENTION—COMPUTER REPAIR CENTERS

You no longer have to be "COMMODORE REPAIR AUTHORIZED" to obtain the lowest prices on replacement chips or parts.

We at the Grapevine Group will supply you with chips, upgrades, diagnostics, power supplies, schematics and a library of "technical notes." Our prices, 90% of the time, are lower than buying from Commodore directly, and 100% of the time less than our competitors.

Write to us on your company or school letterhead for pricing information and our exclusive catalog of new products.

THE GRAPEVINE GROUP, INC.
35 CHARLOTTE DRIVE
WESLEY HILLS, NY 10977
TOLL FREE 800-292-7445 (914) 354-4448 FAX (914) 354-6696

JOYSTICK WARRIORS

Prepare for battle on your C-64/128!

Are you ready to enter the dark depths of the unknown? To battle legions of hideous horrors? To boldly go where Captain Kirk wouldn't even dare to!! For action and adventure write to:

AERION SOFTWARE LTD
PO Box 1222, Riverdale Station
New York, NY 10471-1222

THE BASEBALL DATABASE

LET YOUR COMPUTER KEEP TRACK OF YOUR TEAM'S BASEBALL STATS !

EASY TO USE • COMPREHENSIVE
DETAILED PRINTED REPORTS

$49.95 APPLE IIe/IIc/IIGS
$39.95 COMMODORE 64/128

Add $2.50 for shipping & handling; 15 day money back guarantee; VISA/MC/check or MO; Program specs & details available upon request.

JACOBSEN SOFTWARE DESIGNS
Attn: Order - RN
1590 E. 43rd Ave., Eugene, Oregon 97405 Phone: (503) 343-8030

RUR U2

BRAND NEW 128 GAME

Parsec is proud to introduce a new 80 column C-128 game. This 80 column graphic adventure game features full color/screen graphics, all ML animation, mouse input, 3D animation, over 1.5 megs of graphics, digitalized sound, irq driven music and mouse. System requirement: **128D, 1351 mouse, RGB monitor**. Other systems: **C1581, C1764 supported (specify 1571 or 1581 format)**. Game contains a shrink wrap license. Prices listed below include shipping costs in US funds.

US with street address $33.45
POBs, AL, HI 34.95
Canada 36.95

Send your check or money order to:

Parsec, Inc. Att: 128 Game
POB 111, Salem MA 01970

C128 C64

ALL NEW PD CATALOG

In this catalog, we now offer over 190,000 blocks of programs for your C-128/64. Over 45,000 for your 128. We now offer GEOS, CLIPART, BASIC 8, DEMOS, MOVIES and MUSIC disks. And all for only 75 cents a piece. Most disks avg. less than 10 blocks free. Plus, we offer color inkjet printing! An exceptional value! We can be reached online at:
Q-link = Parsec, Genie = JBEE, CIS = 76456,3667
To order our catalog, send us $2.00 (US funds). Personal checks and money orders accepted. Mail to:

Parsec, Inc.
POB 111, Salem, MA 01970

KASARA MICROSYSTEMS 1-800-248-2983

FOR 10 YEARS
COMPETITIVE PRICES
QUALITY SERVICE
SAVE

your RELIABLE SOURCE for ICs—Amiga/CBM. Expanding to include PC Product ICs. on a comprehensive inventory of Commodore, ICs, PSs, PC Bds. and Accessories. at prices guaranteed "below suggested retail."
MONEY on monthly specials and TIME with the 'Diagnostician,' our 1541/C-64 troubleshooting guide.

VISA / MC / COD

MAKE MONEY DURING TAX SEASON

Or do your own Income Taxes. No experience in tax preparations needed. Walk-thru program. For Commodore 64/128. Schedules: 1040EZ, 1040A, 1040, A, B, C, D, E, R, 2441, 4137. 95% of all tax returns (100% money back guarantee). Send $39.95 for immediate return to:

Consolidated Business Services
124-175th Terr. Dr. N
Redington Shores, FL 33708
For more info., call 813-398-1876

MG ENTERPRISES

Presents

C-64

Game Disk #2001

For the C-64

Two Text Games only
$9.95
plus $2.00 S & H
Texas residents please add $.90 tax
Checks or Money Orders only
Please allow 4–6 weeks delivery

ORDER GAME DISK #2001 FROM: MG Enterprises
Dept. 190B, 4007 89th St., Lubbock, TX 79423

ATTENTION ROLE PLAYERS

CHARACTER EDITORS ($19.95 each) — Might and Magic (1 or 2), Bards Tale (1, 2 or 3), Wasteland, Ultima (2, 3, 4 or 5), Wizardry (1, 2 or 3), Pool of Radiance, Neuromancer, Elite, Phantasie (1, 2 or 3), Mars Saga, Magic Candle and Curse of the Azure Bonds.

HINT BOOKS ($9.95 each) — Wizardry (1, 2, or 3), Might and Magic, Legacy of the Ancients and Curse of the Azure Bonds.

Add $3.00 for shipping/handling. Specify computer type on order.

GOSSELIN COMPUTER CONSULTANTS
PO Box 1083 • Brighton, MI 48116 • (313) 229-2453

MARCH

COMING ATTRACTIONS

COMMODORE CHECKLIST—

If you're serious about computing, here's a guide to the equipment, resources and applications you'll need to get started . . . and to keep going.

TYPE-IN PROGRAMS—

Next month we have a variety of listings you can add to your software library, including: **Colorout**—which tests your ability to keep a ball in play to break through a wall of bricks. **Screen Color Interrupt**—a useful utility that gives you control over the colors of the screen, border and text—just by pressing three keys. **Speed-Viewer**—an easy and quick way to examine your disk text files.

IN ADDITION...

RUN will present reviews, computing and game-playing hints and tips, news and new products, answers to readers' questions and more.

RERUN PREVIEW—

Here's the lineup for the January–February 1990 ReRUN disk: **RUNbase 128**—An easy-to-use database; **Money Manager**—Does everything but write the checks and pay the bills (C-64 or C-128); **C-128 Buttons**—Add buttons and point-and-click control; **Foosball 64**—Play Table Soccer on your C-64; **Duo**—Outwit your C-64 in this card game; **Super Fonts**—Create characters four times larger than Commodore character sets with RUN Paint and the C-64 or C-128; **Fast-40**—Speed up your C-128 40-Column-mode programs; **NICK**—Keep your sprites in order with your C-128. Plus three bonus programs: **Basic U.S. Map**—A multipurpose map for the C-128; **Traffic Jam Session**—A fast-paced arcade-type game for the C-64; and **Monitor Wedge 128**—Speed your material directly to the printer.

LIST OF ADVERTISERS

(603) 924-7138 or (800) 441-4403
NATIONAL ADVERTISING SALES MANAGER: **KEN BLAKEMAN**
NORTHEAST/MIDWEST/SOUTHEAST SALES: **NANCY POTTER-THOMPSON**
WESTERN STATES SALES MANAGER: **GIORGIO SALUTI, (415) 363-5230**

Reader Service		Page
71	Ampex Systems, Inc.	62
134	Berkeley Softworks	14, 15
138	Berkeley Softworks	23
22	Capcom USA Inc.	5
*	Computer Heroes	69
166	Creative Micro Design	21
48	Damark Int'l, Inc.	25
158	Entertainment On-Line	47
242	Financial Service Mktg. Corp.	10
148	IDG Sega	11
148	IDG Sega	13
202	Jason Ranheim	67
66	Loadstar	1
*	Lyco Computer	33
136	Master Software	67
67	Medalist Int'l.	CIV
*	Montgomery Grant	39
58	Origin Systems	7
221	P.A.V.Y. Software	69
11	Practical Programs	52
15	Protecto's Computer Direct	35
232	Ramco Computer Printer	67
*	RUN	
	GEOS Companion	17
	Class Ads	70–71
245	Software Discounters	58
245	Software Discounters	59
17	Software Support Int'l.	CIII
17	Software Support Int'l.	48
17	Software Support Int'l.	49
17	Software Support Int'l.	51
*	SOGWAP Software	69
*	Strategic Simulations	2
*	Tab Books, Inc.	41
155	Tenex Computer Express	43
70	Tengen, Inc.	CII
236	The Soft Group	67
187	Utilities Unlimited	45
51	VSI	53
96	Xetec, Inc.	9

For further information from our advertisers, circle the corresponding Reader Service number on the adjoining card.

*This advertiser prefers to be contacted directly.

***RUN* ALERT:** As a service to its readers, *RUN* will periodically publish the names of companies who are having difficulties meeting their customer obligations or who have gone out of business. Readers are advised to contact **Susan Kaniwec, Customer Service Representative, *RUN* Magazine, 80 Elm St., Peterborough, NH 03458**, before dealing with any companies that may be listed. At present, there are none.

PRESIDENT
ROGER J. MURPHY
EXECUTIVE VICE PRESIDENT/PUBLISHING DIRECTOR
STEPHEN D. TWOMBLY
VICE PRESIDENT OF MANUFACTURING/OPERATIONS
DENNIS S. CHRISTENSEN
DIRECTOR OF TECHNOLOGY RESEARCH
JEFFREY D. DETRAY

SINGLE COPY SALES DIRECTOR: **LINDA RUTH**
NEWSSTAND PROMOTION MANAGER: **DEBBIE WALSH**
DIRECTOR OF CREDIT SALES & COLLECTIONS: **WILLIAM M. BOYER**

MANUFACTURING MANAGER: **LYNN LAGASSE**
TYPESETTING MANAGER: **LINDA PALMISANO**; SYSTEM SUPERVISOR: **DOREEN MEANS**
TYPESETTER: **DEBRA A. DAVIES**
FOUNDER: **WAYNE GREEN**

Manuscripts: All manuscript contributions, queries, requests for writer's guidelines and any other editorial correspondence should be directed to *RUN*, Editorial Offices, 80 Elm St., Peterborough, NH 03458; telephone: 603-924-9471.

Subscription problems or address changes: Call 1-800-274-5241 (in Colorado, call 447-9330), or write to *RUN*, Subscription Services, PO Box 58711, Boulder, CO 80322-8711.

Problems with advertisers: Send a description of the problem and your current address to: *RUN*, 80 Elm Street, Peterborough, NH 03458, ATTN.: Susan Kaniwec, Customer Service.

Back Issues: *RUN* back issues are available for $3.50, plus $1 postage and handling, from: *RUN*, Back Issue Orders, 80 Elm St., Peterborough, NH 03458; or call 1-800-343-0728.

Inquiries regarding ReRUN: Write to ReRUN, 80 Elm St., Peterborough, NH 03458, or call 1-800-343-0728.

***RUN*'s BBS**: The RUNning Board is *RUN*'s reader feedback bulletin board, which you can call anytime, day or night, seven days a week, for up-to-date information about the magazine, the Commodore industry and news and information of interest to all Commodore users. Call: 603-924-9704.

EXPERIENCE

THE

POWER

In our previous ads you saw the great comments that versions 1, 2 and 3 of SUPER SNAPSHOT received from various North American reviewers. And with V4 it was more of the same except the comments took on an international tone. For example....

> **"...a joy to work with. ....I highly recommend it."**
> Eric Hoyroyd, Sept., 1989
> Australian Commodore and Amiga Review

> **"I personally liked the facilities that Super Snapshot gave me, and will no doubt use it regularly."**
> S Garton, April 1989
> YOUR COMMODORE (England)

> **"This cartridge just keeps getting better with every release. There's nothing else that can even touch it."**
> INFO March/April 1989

We were happy to receive such acclaim; but YOU wanted more. So much more that the memory required far exceeded any of the current cartridges available.

To us at LMS, the solution was obvious...we had to double the memory of our cartridge. This meant a whole new hardware design. That's right, SUPER SNAPSHOT now contains an incredible 64K rom and 8K ram combination. NO OTHER CARTRIDGE IN THE WORLD OFFERS THIS MUCH POWER!

Buying 2 or 3 competitive cartridges would still not give you all of the features listed on the right!

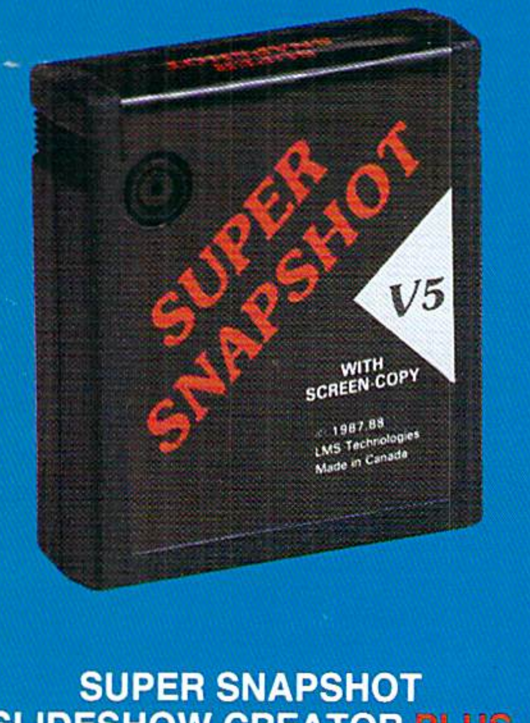
▶ Version 1, 2, 3 and 4 owners may upgrade to version 5 for $30.00 CALL US ▶ C128 disable switch or 64 reset switch, add $8.00

SOFTWARE SUPPORT INTERNATIONAL

DEALER INQUIRIES WELCOME

Circle 17 on Reader Service card

In Canada order from: Marshview Software,
PO Box 1212, Sackville NB E0A 3C0 (506) 536-1809
SS V5 $69.95 Slideshow Creator $29.95



SUPER SNAPSHOT SLIDESHOW CREATOR PLUS

Our popular SLIDESHOW CREATOR has also been enhanced! Many new features make this utility even more versatile and fun. Add new fonts by using the font files captured using our CHARACTER SET MONITOR. There are also more display effects, an editor screen and you can even add sound to your custom slideshows! The sound can be files generated by our SOUND SAMPLE MONITOR, any of the popular sid player files or you can even convert Amiga IFF files into 64 format! Menu driven and easy to use.

Super Snapshot V5 - $64.95
Slideshow Creator Plus - only $24.95

SUPER SNAPSHOT V5 FEATURES:

▶ All features available at the press of a button ▶ Works with all 64 (C) and 128 (D) ▶ Compatible with 1700/64/50 REU ▶ Archive any memory resident program into 1 file ▶ Save 7x faster and load 15x faster on the 1541, 71 and 81. Speeds of up to 25x faster when using TURBO*25 ▶ Super DOS wedge ▶ GAME MASTER menu with sprite killer, infinite lives generator and joystick port swapper ▶ Programmable function keys ▶ Sprite monitor ▶ Character set monitor ▶ Boot sector support ▶ Sound sample monitor ▶ 300/1200/2400 terminal program (40/80 column) ▶ SUPER DISK SNAPSHOT - our new super nibbler ▶ SCREEN-COPY now loads or saves from/to disk in more graphic formats and dumps to printer in 16 gray scales or COLOR with the Star Rainbow or Epson JX-80 ▶ Improved full featured m/l monitor that DOES NOT CORRUPT MEMORY. Interrupt, examine and resume any running program ▶ Drive mon ▶ BASIC PLUS with 15 new basic commands ▶ File Management System - scratch, unscratch, rename or adjust skew. Includes our 1 or 2 drive file copier with partition support for the 1581 ▶ Fast disk copiers, 1 or 2 drives ▶ OUR FILE COPIER, DISK COPIERS and NIBBLER MAKE FULL USE OF THE REU's ▶ Sequential file reader ▶ 24 hr. BBS support ▶ Utility disk ▶ Plus **much** more including 150+ free Kracker Jax parameters

SUPER SNAPSHOT V5...the most powerful utility ever developed for the 64.

ORDERING: We accept money order, certified cheques, VISA, M/C and Discover. Previous Software Support customers may use C.O.D. and personal cheques. Orders shipped to USA (48 states), F.P.O., A.P.O., or possessions please add $3.50 per order for S & H. U.S. shipping is by UPS ground in most cases. FAST 2nd DAY AIR available: add $1.00 per unit additional (U.S. 48 states only). Alaska or Hawaii (all orders shipped 2nd day air), please add $7.50 per order for S & H. C.O.D. available to U.S. customers only (50 states): add $2.75 along with your S & H charges per order. Foreign customers may calculate the shipping and handling charges by adding $7.50 per cartridge and $4.00 per software item order, All monies must be submitted in U.S. funds. Defective items are replaced at no charge if sent post paid. All in stock orders are processed within 24 hours. Washington residents please add 7.6% additional for Sales Tax. All prices subject to change. All sales are final unless authorized by management.
Mail your order to: **Software Support Int., 2700 NE Andresen Road, #A-1, Vancouver, WA 98661**

Or call our toll-free order line at 1-800-356-1179, 9am-5pm Pacific time, Monday-Friday. After hour orders accepted at (206) 695-9648 7 days a week. Technical support available. Call (206) 695-9648, 9am-5pm Pacific time, Monday-Friday.

LMS TECHNOLOGIES

MADE IN CANADA

The Senators
Washington SENATORS
New York Yankees

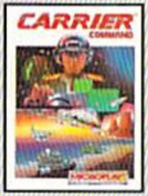
Suddenly… An American Tradition

From now on, every generation will be a MicroPlay generation.

MICROPLAY™
SOFTWARE

Weird Dreams
MICROPLAY

STARGLIDER II
MICROPLAY


CARRIER
COMMAND
MICROPLAY

RACER
MICROPLAY

RVF
MICROPLAY

3D POOL
MICROPLAY

Rick Dangerous
MICROPLAY

See your software retailer or call 301 771-1151 x208, M-F 9am-5pm Eastern Time. MicroPlay Software is marketed by Medalist International, a division of MicroProse Software, Inc. 180 Lakefront Drive, Hunt Valley MD 21030.

Circle 67 on Reader Service card.